A FLORISTIC STUDY OF COOK COUNTY, NORTHEASTERN MINNESOTA

FRED K. BUTTERS AND ERNST C. ABBE

(*Concluded*)

ARABIS LYRATA L. Porcupine Island, AA 582, BBs 749, OO 1056; Lucille Island, BAA 373.—Cracks in rocks on lake shore; rare. These collections are composed of plants in an extremely depauperate state. The fruiting plants vary from 2–6 cm. in height. The rosette leaves are so reduced in size that their characteristic lyrate lobing is almost or wholly suppressed, only an occasional leaf showing a shallow sinus on one or the other side. Furthermore the pods are shorter than average for the species, approximating in their dimensions those of *A. arenicola* (Richardson) Gelert, var. *pubescens* (S. Wats.) Gelert, although 0.5 mm. narrower than authentic material of the latter species. The combination of circumstances was such that we were for a time convinced that our material was indeed the latter species. However the somewhat more slender pods and the presence of an occasional shallow sinus in the basal leaves led us to plant viable seed from one of the collections. The seeds all produced plants with large, healthy rosettes 6 or more inches in diameter and leaves with a full development of the highly characteristic lyrate pattern of *A. lyrata*. We mention our experience with this material since we nearly fell into an error which others may wish to avoid. Plants similar in habit occur elsewhere in the Lake Superior region, as for instance, J. W. Robbins, Isle Royale, 1861; A. H. Smith, Islands of St. Ignace, July–Aug. 1871 (both in the Herbarium of the New York Botanical Garden) and Stuntz and Allen, no. 2 from Isle Royale (in the Gray Herbarium).

A. GLABRA (L.) Bernh. Poplar River, B. Juni (1878).
Reported by Juni (*op. cit.*) as *A. perfoliata* Lam.

A. HIRSUTA (L.) Scop., var. PYCNOCARPA (Hopkins) Rollins, RHODORA **43:** 318. *A. pycnocarpa* Hopkins, var. *typica* Hopkins, RHODORA **39:** 113. Hungry Jack Lake, BsH 422; Clearwater Lake, BBl 411; Little Caribou Lake, BsH 399; Mountain Lake, BBsH 46, BBsH 128; West Pike Lake, BsH 191, BsH 201; Royal Lake, BsH 252, BsH 365; Clark's Bay, BAA 395a; Morrison's Bay, BBs 739; Grand Portage, BAA 462a; Mount Josephine, BA 182a; Thunder Bay Dist., Ont. (Pigeon Bay) AA 599.—Cliffs, talus slopes, hill-tops and shore rocks; local.

The following specimens of *A. hirsuta* represent a phase with very numerous (but not appressed) forked hairs on the basal portion of the stem, making it difficult to assign them to any, of Hopkins' (*loc. cit.*) or Rollins' (*loc. cit.*) varieties:—Clearwater Lake, N 1699, BA 80; Mountain Lake, BBsH 130; East Pike Lake, BsH 227; MacFarland Lake, BM 10806; Grand Portage, BA 156, BAA 462.

A. DIVARICARPA A. Nelson, var. TYPICA Hopkins, RHODORA **39:** 129. *cf.* Rollins, RHODORA **43:** 375. Cross River, BA 924; Watab Lake, BA 114a;

Clearwater Lake, BBl 410, N 1690, Butters and Wherry (June 29, 1935), BA 76, BA 955, D 125a; West Pike Lake, BsH 205; East Pike Lake, BsH 226; North Fowl Lake, BABs 705; South Fowl Lake, BsH 279, BM 10828; Royal Lake, BsH 253, BsH 339; Pigeon Point, BAA 409; Clark's Bay, NBr 3235a; Grand Portage, BBl 368, BA 182, BM 10886; Mount Josephine, BA 182; Thunder Bay Dist., Ont. (Pigeon Bay), AA 599a.—Cliffs, talus slopes, hilltops.

A. Holboellii Hornem., var. retrofracta (Graham) Rydb. *cf.* Rollins, Rhodora **43:** 441. Mountain Lake, BBsH 139.—Cliff; very rare. First report from the state. According to Rollins (*loc. cit.*) it occurs "Locally in Quebec and Michigan, more abundant westward from Saskatchewan and Alberta . . ." Our material thus helps fill in a part of the gap between the more western stations and the Quebec and Michigan ones.

A. divaricarpa var. typica × A. holboellii var. retrofracta. South Fowl Lake, BsH 316. Cliffs; unique. This collection combines in varying degrees the characters of the probable parents, except for its pods which are abnormal in shape; the pods have developed to the point of dehiscence, but seeds have failed to form. Dr. M. Hopkins (*in litt.*, Jan. 30, 1939) agrees to this assignment of the collection, *sub. nom.*, *A. divaricarpa* A. Nelson × *A. pendulocarpa* A. Nelson.

SARRACENIACEAE

Sarracenia purpurea L. Sea Gull Lake, L 3698; Sawbill Lake, Bg 86; Poplar Lake, L. W. Orr 26; Mountain Lake, BAA 295; Clearwater Lake, BA (sight record).—Black spruce muskeg, sphagnum bogs, etc.; quite rare in eastern Cook Co. because of the scarcity of appropriate bogs.

DROSERACEAE

Drosera intermedia Hayne. *D. longifolia* of Gray's Man. ed. 7. Sawbill Lake, Bg 85; Northern Light Lake, MacMillan Brand and Lyon 72; Grand Portage, S A5307.—Pool and lake margins.

D. rotundifolia L. Kelso River, Bg 84; Gunflint Lake, SS 6014; Hungry Jack Lake, BR 6355; Poplar Lake, BA 830; Clark's Bay, B (Sep. 3, 1927); Porcupine Island, OO 1017; Belle Rose Island, OO 1068; Susie Island, N 1649, OO 1132; Long Island, BAA 464, AA 504, OS 1114; Grand Portage, Be 675, BR 6304; Temperance River, SS 6029, S A7414, OS 1001.—Bogs, moist sphagnum in deep woods, pool margins.

SAXIFRAGACEAE

Saxifraga virginiensis Michx. Clearwater Lake, BBl 406, BBl 409, N 1707, Butters & Wherry (June 29, 1935), BA 61, BA 129, BA (June 21, 1936), BBsH 9, D 113, D 125b; Mountain Lake, BBsH 135; West Pike Lake, BsH 179, BsH 197; East Pike Lake, BsH 219; North Fowl Lake, BABs 676; South Fowl Lake, BsH 277, BM 10827, BABs 613; Royal Lake, BsH 254, BsH 219, BsH 254; Pigeon River, BR 4605; Mount Josephine, BR 6321.—Cliffs; very local.

Elsewhere in the state this species occurs at Duluth and Two Harbors on the shore of Lake Superior, in the extreme northern part of Lake and

St. Louis Counties and at the Lake of the Woods. This is an extremely northern pattern of distribution within the state, resembling that of *Ranunculus lapponicus*. This is very peculiar, because throughout its range it is characteristically a temperate region species of northeastern U. S. and southeastern Canada. On the basis of its distribution elsewhere it might well be expected to be more widespread in the state, rather than restricted to its cool northern fringe.

The Minnesota material has been studied carefully to see if it could not possibly be placed elsewhere, but it agrees perfectly with eastern material in its floral structures, seeds, etc. Superficially some of our specimens resemble *S. nivalis* L., but are distinguishable on the basis of the flower structure, *S. nivalis* having shorter petals, a coarser flower for the size of the plant, the lower part of the flower larger and perhaps deeper, and the bracts larger and ovate rather than narrowly lanceolate.

Our material shows much the same range of variation as occurs in the East, some specimens being loosely paniculate with monochasial branches and short-pedicelled flowers—others are glomerulate and the flowers scarcely at all pedicelled (S. VIRGINIENSIS, f. GLOMERULATA Fernald, RHODORA **19:** 143)—whether the latter is to be recognized as a special form is an open question, since much of the difference may be due to age.

S. CERNUA L., f. LATIBRACTEATA (Fern. & Weath.) Polunin, Jour. Bot. **76:** 100. Mountain Lake, BAA 279, BBsH 80.—Upper margin of fine talus at base of diabase cliff; only known location in Minnesota—an area of about 5 sq. ft. Our material is clearly Fernald and Weatherby's entity and extends their description (RHODORA **33:** 234) of the range "Baffin Island, Gaspé Peninsula, Quebec; Keewatin and Alberta" significantly southward in the mid-continental region. The closest station to ours cited by Fernald is Fullerton, Keewatin. Our material is composed of flourishing specimens, one freely branched, from 12 cm. up to 3 dm. high.

S. AIZOÖN Jacq., var. NEOGAEA Butters, RHODORA **46:** 65. Watab Lake, BA 109a; Clearwater Lake, BBl 407, N 1697, BA 90, Butters & Abbe (Jun. 21, 1936), BBsH 12; Mountain Lake, BAA 251, BBsH 52, BBsH 81; MacFarland Lake, BsH 369; South Fowl Lake, BsH 273, BABs 612; Royal Lake, BsH 360, BM 10848; Thunder Bay Dist., Ont. (North Fowl Lake) BABs 683, (South Fowl Lake) BABs 709.—Cliffs of the Border Lakes; very local. This has been discussed in detail in Butters (*loc. cit.*).

HEUCHERA RICHARDSONII R. Br. (typical). Lake Saganaga, L. S. Cheney (Jul. 24, 1891); Sea Gull Lake, N 1667.—Acid rocks; infrequent in the county.

H. RICHARDSONII, var. HISPIDIOR Rosend., But. & Lak. Sea Gull River, N 1671; Rove Lake, BBl 427; Watab Lake, BAA 222, BBsH 110, SS 6017; Clearwater Lake, BBl 401, N 1710, BA 106, D 111; Royal Lake, BsH 241; Thunder Bay Dist., Ont. (Mountain Lake), BAA 310, (North Fowl Lake) BABs 698.—Cliffs (slate, diabase, granite), sometimes wooded; the common representative of the species in the region, not being restricted to acid substratum.

Mitella nuda L. Sea Gull Lake, L 3640; Sawbill Lake, Bg 83; Loon Lake, D 185c; Poplar Lake, D 37; Rove Lake, BA 116; Clark's Bay, BBs 720; Lucille Island, BAA 371; Grand Portage, Be 539, R 6014, S. Brown 37, Butters & Wherry (June 29, 1935); Brule River, R (Sep. 11, 1927); Grand Marais, T. S. Roberts (July 30, 1879); Carribeau River, BR 4495.—Moist woods; very frequent.

Chrysosplenium americanum Schwein. Kimball Creek, R 2603; Devil's Track River, BR 4662.—Moist places; rare. Reported by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, 134) from the Brule River.

Parnassia palustris L., var. neogaea Fernald, Rhodora **39:** 311. Susie Island, OO 1031; Grand Portage, Be 646, BR 6303; Temperance River, SS 6027, OO 999; Schroeder, BA 1066, L 6427, OS 982.—Moist places; rare, but locally abundant. Reported by Juni (*loc. cit.*) from Grand Portage Island.

Ribes hirtellum Michx. Brule River, BR 4519; Cross River, BA 896.

Mr. D. M. Stewart reports to us that this occurs north to the border and is general as to habitat.

R. oxyacanthoides L. Gunflint Lake, R 5449; Clearwater Lake, BBl 405, BA 957, D 117; Susie Island, R 6039; Grand Portage, Be 579, R 6017, BR 6212; Brule River, BR 4540; Grand Marais, R 5972, BR 6913, BA 50; Carribeau River, BR 4462; Tofte, R 7833.—Moist woods and openings; frequent.

R. lacustre (Pers.) Poir. Clearwater Lake, BBl 421, BA 54; Mountain Lake, BBsH 83; Grand Portage, R 5994, BR 6205, Be 589; Pigeon Point, BA 995; Kimball Creek, R 2624; Grand Marais, BR 4656; Carribeau River, BR 4489.—Moist woods. Also reported from the North Brule by Mr. D. M. Stewart.

R. glandulosum Grauer. *R. prostratum* L'Hér. Winchell Lake, BA 136; Poplar Lake, D 5, D 18; John Lake, BM 10781; South Fowl Lake, BABs 621; Susie Island, OO 1121; Grand Portage, Be 480; Brule River, BR 4541; Kimball Creek, R 2633; Grand Marais, BA 48.—Moist woods; general.

R. triste Pallas. Loon Lake, D 176; Grand Portage, Be 544, Butters & Wherry (June 30, 1935); Kimball Creek, R 2623.

Mr. D. M. Stewart informs us that this species is general in the county.

R. hudsonianum Richards. Poplar Lake, L. W. Orr 27, D 3; Clearwater Lake, BBl 443; Pigeon River, BR 4558; Clark's Bay, B (Sep. 3, 1927), BAA 396; Susie Island, OO 1122; Grand Portage, R 6028b.—Swampy woods; frequent. Also reported from the North Brule by Mr. D. M. Stewart.

ROSACEAE

Physocarpus opulifolius (L.) Maxim. Clark's Bay, NM 3657, BAA (Jul. 12, 1937); Morrison Bay, BBl 358; Susie Island, P. A. Rydberg 9712, AA 563, OO 1025; Grand Portage, R 6032a; Grand Marais, H. W. Slack (Jul. 1892); Tofte, L 4838.—Beaches and islands along the shore of Lake Superior.

All of the material from Duluth to Pigeon Point is *P. opulifolius* rather than *P. opulifolius*, var. *intermedius* (Rydb.) Robins., although some

pubescence persists on the glossy and darker carpels, notably along the sutures, in some cases (AA 563) as late as Aug. 20, when the fruit is nearly ripe.

SPIRAEA ALBA DuRoi. Sea Gull River, BA 903; Cross River, BR 6371; John Lake, BsH 266; Grand Portage, Be 656; Grand Marais, R 5959, BR (Aug. 14, 1934).—Lake shores, stream banks, moist woods, borders of swamps; common.

PYRUS MELANOCARPA (Michx.) Willd. *Aronia melanocarpa* (Michx.) Spach. Grand Marais, H. W. Slack (Jul. 1892).—A very dubious record.

P. AMERICANA (Marsh.) DC. *Sorbus americana* Marsh. Sawbill Lake, D. G. Schaal (8-6-38); Gunflint Lake, R 5447, R 5456; Watab Lake, BAA 235; Grand Portage, Be 555, Be 586, BR 6204; Mineral Center, BR 4583; Brule River, R 5439; Kimball Creek, R 2625; Grand Marais, R 5969, BBl 477; Lutsen, R 5439.—Roadsides, woods, talus slopes; occasional.

P. DECORA (Sarg.) Hyland. *Sorbus decora* (Sarg.) Schneid. *S. subvestita sensu* Rosendahl & Butters, Trees and Shrubs of Minnesota, p. 195, 1928, not Greene, 1900. Gunflint Lake, R 5454; Winchell Lake, BA (June 27, 1936); Lucille Island, BAA 356; Grand Portage, R 6035a; Mt. Rose, R 7910.—Trails, woods; frequent.

While *P. americana* is sometimes shrubby in Cook Co., *P. decora* in the Lake Superior region is a fairly large tree and in places practically lines the shore, as for example at Clark's Bay. *P. decora* is much more common than the number of collections indicates, but because it is a good-sized tree it is not often collected.

AMELANCHIER[13] SANGUINEA (Pursh) DC. Sea Gull Lake, N 1670, N 1672; Clearwater Lake, BBl 412, N 1704, N 1705; Grand Portage, Be 530, Be 558, R 6072, R 6203; Mount Josephine, NE 2044; Clark's Bay, NM 3655, MN 3663; Porcupine Island, BR 6258; Kimball Creek, R 2635; Devil's Track River, C. W. Hall (Aug. 21, 1879).—Woods and talus slopes. Nielsen (Amer. Midl. Nat. **22:** 169) says "In Minnesota this species is limited to the extreme southeast and northeast corners of the state."

A. HURONENSIS Wieg. Watab Lake, BAA 229; Lima Mountain, BA 878; North Fowl Lake, BABs 658; Pigeon Point, N 1645; Clark's Bay, NE 2024, NE 2031, NE 2038, NE 2040a; Wauswaugoning Bay, NE 2022; Mount Josephine, N 1606, N 1615, N 1616, NE 2014, NE 2017, NE 2045, NE 2046, NE 2048, NE 2049; Grand Portage, BBl 370, N 1613, NBr 3225, NBr 3226, NBr 3228, R 7860, R 7863; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 701.—Nielsen (*op. cit.*, p. 171) says "In Minnesota it occurs on calcareous drift or on basic rock outcrops of the northern or northeastern parts of the state."

A. WIEGANDII Nielsen, Amer. Midl. Nat. **22:** 180. Pigeon Point, BAA 407; Clark's Bay, N 1623, NE 2028, NE 2030, NE 2033, NE 2040, NE 2041, NBr 3228a, NBr 3229, NBr 3232, NBr 3236, NBr 3237, NBr 3238, NBr 3241, NM 3659, NM 3662, NM 3666; Wauswaugoning Bay, NE 2018, NE 2020, NE 2021, NE 2027, NE 2032; Lucille Island, N 1663;

[13] The determinations of *Amelanchier* are primarily by E. L. Nielsen, especially specimens collected by N, Br, E, or R.

Mount Josephine, N 1614, NE 2016; Mount Rose, R 7909; Tofte, NE 1998, NBr 3160.—Described by Nielsen (*op. cit.*, p. 180) as occurring in Minnesota along the north shore of Lake Superior and east of the divide paralleling the lake.

A. HUMILIS Wieg., var. COMPACTA Nielsen, Amer. Midl. Nat. **22:** 174. Grand Portage, NBr 3221, NBr 3222; Grand Marais, BA 774.—Nielsen (*op. cit.*, p. 175) considers this to be the most common variant of the species in the state and states that it is "frequent in the forested portion of the state, but more typically developed in the coniferous belt."

A. MUCRONATA Nielsen, Amer. Midl. Nat. **22:** 178. Clark's Bay, NE 2036, NE 2042, NE 2043, NM 3230, NBr 3230a, NBr 3234, NBr 3239, NBr 3242, NM 3664.—Nielsen (*op. cit.*, p. 179) points out that his new species is known only from Clark's Bay, although Fernald (Gray's Man., ed. 8, p. 765) gives its range as "n. Minn. and se. Man."

A. STOLONIFERA Wieg. Clark's Bay, N 1617, NBr 3231, NBr 3232a, NBr 3233, NBr 3235, NBr 3240, NM 3661, NM 3665; Grand Portage, Be 531.—According to Nielsen (*op. cit.*, p. 178) it is "confined to acid rock outcrops and sandy areas in northeastern Minnesota."

A. CANADENSIS (L.) Medic. Mount Josephine, N 1605, N 1607, N 1611, N 1612.—According to Nielsen (*op. cit.*, p. 183) it is limited in Minnesota to the southeast and northeast corners of the state where its occurrence is very infrequent.

A. INTERMEDIA Spach. Clearwater Lake, BBl 450.—Reported by Nielsen (*op. cit.*, p. 186) from Minnesota only "along the Mississippi River from Anoka and Washington Counties south to the Iowa boundary."

A. LAEVIS Wiegand. Grand Portage, Be 483, BA 193.—Nielsen (*op. cit.*, p. 188) states that it occurs rather commonly throughout the forested portion of the state.

A. BARTRAMIANA (Tausch.) Roem. Pigeon River, BR 4561; Clark's Bay, N 1620, NE 2034, NE 2035; Sailboat Island, AA 538; Grand Portage, R 6073, NBr 3224; Tofte, N 1354; Schroeder, N 1731, NBr 3209.—According to Nielsen (*op. cit.*, p. 189) it is confined to the part of Minnesota north of Lake Superior.

A. BARTRAMIANA × A. LAEVIS. Winchell Lake, BA 141.—A number of other hybrids (determined by E. L. Nielsen) from our area are represented in the Herbarium of the University of Minnesota, but are not listed. Hybridization apparently occurs in this genus with great freedom.

CRATAEGUS COLUMBIANA Howell, var. PIPERI (Britton) Egglest. Cross River, BBl 392; North Lake, D. Lange 11; North Fowl Lake, BABs 702; Pigeon River, BR 6263; Grand Portage, Butters & Wherry (June 30, 1935).—Portage trails and thickets.

This member of the ROTUNDIFOLIAE, because of its close resemblance to western material, is referred by the writers to *C. columbiana* var. *Piperi* of ed. 7, Gray's Manual, rather than to any of the taxa placed in this group in ed. 8 of Gray's Manual. The Cook County material is markedly similar to Wm. C. Cusick 2512 ("Eastern Oregon Plants," 1901) in:—the shape and toothing of the leaves, its gray twigs and grayish-olive

branchlets, its relatively slender pedicels and peduncles, the stamens usually being fewer than 10, the filaments which are widened at the base, the three (rarely four) styles and nutlets, the similarity in size of nutlets which often have shallow pits on the inner faces: furthermore, the immature (August) fruits resemble closely the size, color and form of those of J. F. Macbride 1618 (Sweet, Boise County, Idaho, Aug. 12, 1911).

C. Douglasii Lindl. Grand Portage, R 6074, BR 6200, BR 6266, NE 2013, Butters & Wherry (June 1935), BA 1015.—Thicket; seen only in Grand Portage village. Our material agrees very well with typical western material. The prematurely ripe and drooping fruits in our collection BA 1015 are almost black, most of them being still immature are dark mahogany at this date (Aug. 12, 1944). The long stones of the fruit are up to 6.4 mm. in length which somewhat exceeds the upper limit indicated in Gray's Man., ed. 7 (5–6 mm.), but resemble very closely those from Piper's 1536 from Pullman, Wash. Fernald (Rhodora **37:** 272) mentions the occurrence of this species at various stations on the Great Lakes, to which the above locality should be added.

Fragaria virginiana Duchesne. Sawbill Lake, Bg 6; Poplar Lake, D 17; South Fowl Lake, BM 10844, BABs 645; Clark's Bay, NM 3667; Grand Portage, S. Brown 12; Brule River, BR 4531; Grand Marais, BR 4657; Bally Creek, C. B. Reif A31.—Roadsides, open woods, beaches; common.

F. vesca L., var. americana Porter. Sea Gull Lake, L 3617; Clearwater Lake, Butters & Wherry (June 29, 1935), BA 60; Mountain Lake, BAA 277, BAA 288, BBsH 42; John Lake, BM 10802; Susie Island, AA 559; Grand Portage, Be 469; Kimball Creek, R 2621.—Nearly ubiquitous in Cook Co. In several collections the fruits are subglobose rather than pyramidal.

Potentilla fruticosa L. (typical). Morrison Bay, BBl 357; Long Island, AA 505; Grand Marais, T. S. Roberts (Jul. 30, 1879), H. L. Lyon 923, BR 4647.—Ledges and rocks; abundant.

P. fruticosa, var. tenuifolia (Willd.) Lehm. Pigeon Point, R 6077, N 1635, BAA 417, BAA 416; Grand Marais, T. S. Roberts (Jul. 31, 1879), L. S. Cheney (June 27, 1891), H. W. Slack (Jul. 1892), BM 10788; Temperance River, SS 6028.—Ledges and rocks; abundant. Whenever *P. fruticosa* has been collected more than once from a given locality in Cook County the variety also shows up. It is doubtful whether the variety should be considered more than a form.

The distribution of the species (*sens. lat.*) in the state is peculiarly sporadic and local, except on the north shore of Lake Superior where it is common. It also occurs in the vicinity of St. Cloud and in the Minnesota valley near Savage and has been reported by Upham from the northern Red River valley. The Minnesota Valley material is var. *tenuifolia*. All the places where it occurs in the state are singularly inappropriate for glacial relics (in the narrow sense) because post-glacial bodies of water occupied these areas until relatively recent geological times. Its present distribution, other than by existing bodies of water, may well reflect a

former littoral occurrence so that it may be considered as a "post-glacial" relic.

P. TRIDENTATA Solander *in* Aiton. Sea Gull Lake, L 3710; Alton Lake, Bg 80; Gunflint Lake, BBl 381, SS 6013; North Lake, D. Lange 9; Watab Lake, BA 103; Little Caribou Lake, BsH 391; East Pike Lake, BsH 229; North Fowl Lake, BABs 655; Pigeon Point, R 6078; Clark's Bay, NM (Oct. 6, 1935); Porcupine Island, OO 1011; Belle Rose Island, BR 6238; Susie Island, BBl 352; Lucille Island, BAA 341; Long Island, AA 526; Mount Josephine, BA 167; Brule River, BR 4536; Grand Marais, T. S. Roberts (Jul. 31, 1879), L. S. Cheney (Jun. 27, 1891), H. L. Lyon 122, BM 10774; Temperance River, SS 6039.—Exposed rocks; common.

P. PALUSTRIS (L.) Scop. Sea Gull Lake, BR 2523; Sawbill Lake, Bg 81; West Pike Lake, BsH 170; Otter Lake, BA 797; Agnes Lake, L. W. Krefting 24; Grand Marais, H. W. Slack (Jul. 1892); Bally Creek, C. B. Reif A33.—Swampy areas; infrequent because of limited number of appropriate habitats. Reported by Smith & Moyle (Minn. Dept. of Cons., Tech. Bull. 1, p. 134) from Two Island and Cascade Rivers and Kimball Creek.

P. ARGUTA Pursh. Clearwater Lake, N 1701; West Pike Lake, BsH 190; Mount Josephine, BA 165; Thunder Bay Dist., Ont. (Pigeon Bay), AA 608.—Cliffs and crevices in rocks.

P. PENSYLVANICA L. *cf.* Fernald, Rhodora **37:** 286. Grand Portage, Pease & Bean (July 4, 1937, in Gray Herbarium), R 7862; Thunder Bay Dist., Ont. (Pigeon Bay), AA 602.—Dry habitats; very local.

P. GLABRELLA Rydb. Grand Portage, R 6066, BR 6201, BA 155a.—Talus below slate cliff; very local.

P. GRACILIS Dougl., var. PULCHERRIMA (Lehm.) Fernald, Rhodora **42:** 213. Schroeder, L 6422.—Roadside ditch; rare. Otherwise known from Minnesota only by Miss Lakela's collections in the vicinity of Duluth.

P. NORVEGICA L., var. HIRSUTA (Michx.) Lehm. *P. monspeliensis* L. Sawbill Lake, Bg 4, Bg 5; Rove Lake, BBl 435; Watab Lake, BA 114; Clearwater Lake, BA 77, BBsH 7, D 116; Mountain Lake, BAA 259, BAA 299; Pigeon Point, N 1633; Susie Island, OO 1028, OO 1139; Lucille Island, OO 1092; Grand Portage, Be 511, Be 551; Mount Josephine, BR 6316; Grand Marais, T. S. Roberts (Jul. 27, 1879).—Cliffs, rocky crevices, moist woods; occasional.

Geum ALEPPICUM Jacq., var. STRICTUM (Ait.) Fernald, Rhodora **37:** 294. Sawbill Lake, Bg 82, South Fowl Lake, BsH 295; Royal River, BsH 260; Susie Island, OO 1142; Grand Portage, Be 513, S. Brown (1935), R 7893; Grand Marais, T. S. Roberts (Jul. 31, 1879).—Portage trails, beaches.

G. MACROPHYLLUM Willd. Grand Portage, R 7894; Grand Marais, T. S. Roberts (Aug. 13, 1879).—Moist thicket.

G. RIVALE L. Pigeon River, L. S. Cheney (Jul. 9, 1891).

Rubus PUBESCENS Raf. Gunflint Lake, R 5450; Loon Lake, D 165; Poplar Lake, L. W. Orr 21, D 31; Grand Portage, S. Brown 4; Kimball Creek, R 2630.—Moist meadows, openings in woods; very abundant.

R. PARVIFLORUS Nutt. (*sens. lat.*). Grand Portage, L. S. Cheney (Jul. 3, 1891), BBl 344; Grand Marais, T. S. Roberts (Jul. 30, 1879), R 2612; Grand Portage, S. Brown (1935); Hovland, BR 4627.—Openings in hardwoods; local.

R. IDAEUS L., var. STRIGOSUS (Michx.) Maxim. Pigeon Point, N 1641.

R. IDAEUS, var. CANADENSIS Richards. Winchell Lake, BA 137; Brule River, R 5956; Grand Portage, Be 510, Be 542; Grand Marais, R 2627, R 5956.—Moist openings in woods; common. This variety is the more abundant phase in Cook Co., while the preceding variety is more common to the south in the state.

AGRIMONIA STRIATA Michx. South Lake, BA 787; Leo Lake, BAA 340; West Pike Lake, BsH 207; Pigeon River, R 6030b; Grand Portage, Be 570, S. Brown (1935).—Portage trails, moist woods.

ROSA ACICULARIS Lindl. Gunflint Lake, R 5457; Poplar Lake, R 5433; Clearwater Lake, BA 58; Brule River, NM 3656; South Fowl Lake, BABs 649; Clark's Bay, B (Sep. 1, 1927); Grand Portage, Be 478, Be 541, Hovland, BR 4626; Kimball Creek, R 2631; Grand Marais, N. L. Huff (Jul. 12, 1925), R 5958; Tofte, R 7834.—Openings in and margins of woods; roadsides, stream beds. Of the above collections, BA 58 may be assigned to var. *lacorum*[14] Erlanson (Papers Mich. Acad. Sci., Arts and Letters **5:** 86. 1925), R 2631 to var. *rotunda* Erlanson, and R 5433 to var. *Sayiana* Erlanson.

R. ACICULARIS, var. BOURGEAUIANA Crépin. Sea Gull Lake, L 3608; Grand Portage, Rydberg and Rosendahl 5989; Tofte, R 7835; Grand Marais, R 2632.—Openings and margins, woods.

R. BLANDA Ait. Sea Gull Lake, L 3607; Grand Portage, BA 1055, BA 1056.—Lake shore, roadside.

PRUNUS SUSQUEHANAE Willd. Lake Saganaga, L. S. Cheney (Jul. 23, 1891); Sea Gull Lake, L 3706.—Shore rocks.

P. PENSYLVANICA L. f. Cross River, BA 926; Poplar Lake, D 27; Grand Portage, Be 482, Be 495, Be 525, Butters & Wherry (Jun. 30, 1935); Brule River, BR 4535; Kimball Creek, R 2637.—Lake shores, mixed woods. The nature of the climate in Cook Co. is indicated by the fact that this is in flower the first of July.

P. VIRGINIANA L. Loon Lake, D 172; Watab Lake, BAA 220; Clearwater Lake, D 122; Mineral Center, Be 679; Hovland, BR 4625; Grand Marais, L. S. Cheney (Jun. 22, 1891).—Mixed woods.

LEGUMINOSAE

TRIFOLIUM PRATENSE L. Sawbill Lake, Bg 78; Brule River, E. Loula 7; Grand Portage, Be 492.—Roadside, openings in woods.

T. REPENS L. Sawbill Lake, Bg 79; Susie Island, OO 1138; Brule River, E. Loula 3.—Roadsides; according to G. B. Ownbey "apparently introduced and becoming naturalized" on Susie Island.

T. HYBRIDUM L. Sawbill Lake, Bg 77; Grand Portage, Be 549.—Old trails, roadsides.

[14] It should be pointed out that "*lacorum*" is improper Latin, the correct genitive plural of "*lacus*" being "*lacuum*."

T. AGRARIUM L. Cascade, E. Loula 9.—Sandy soil.

T. PROCUMBENS L. Grand Marais, M. E. Oldenburg (Nov. 1944).—Gravelly area.

MELILOTUS OFFICINALIS (L.) Lam. Grand Portage, BA 1022.—Roadside.

M. ALBA Desr. Loon Lake, BA 931.—Roadside; very infrequent, but locally abundant.

OXYTROPIS IXODES Butters & Abbe, RHODORA **45:** 2. South Fowl Lake, BsH 327, BABs 611.—Isolated on a single slate cliff; locally abundant.

This phytogeographically significant endemic has been discussed in detail by the writers elsewhere (*loc. cit.*). It is one of the group of viscid-glandular species which includes *O. gaspensis* Fernald & Kelsey, *O. hudsonica* (Greene) Fernald, *O. viscida* Nutt. as well as several Old World species.

O. IXODES, f. ECAUDATA Butters & Abbe, RHODORA **45:** 4. Thunder Bay Dist., Ont. (North Fowl Lake), BABs 682.—Isolated on a single slate cliff; locally abundant.

VICIA AMERICANA Muhl. *ex* Willd. Brule River, F. F. Wood (Jul. 2, 1891); Mountain Lake, BBsH 24; John Lake, BM 10797; North Fowl Lake, BABs 666; South Fowl Lake, BsH 302; Grand Portage, Be 505, S. Brown 22; Mineral Center, BR 4568.—Clearings, cliffs, burnt-over slopes, old trails; occasional.

V. AMERICANA, var. TRUNCATA (Nutt.) Brewer. John Lake, BM 10797a.—Cliff. All of the material of the species from Cook Co. has elliptic leaflets, unlike the material from the vicinity of the Twin Cities, but there are all intermediates between the two extremes. It is doubtful whether this variety is tenable.

LATHYRUS JAPONICUS Willd., var. GLABER (Ser.) Fernald, RHODORA **34:** 181. Grand Portage, S. Brown (1935), R 7900; Grand Marais, R 5971; Poplar River, T. S. Roberts (Aug. 7, 1879); Temperance River, SS 6034.—Shore of Lake Superior, especially sand and shingle beaches, but becoming a roadside weed in the vicinity of the lake.

This species occurs not only along the north shore of Lake Superior, but also at Lake of the Woods and Lake Winnipeg. Its presence at the last two localities suggests the thought that it perhaps spread along the shores of Lake Agassiz.

N. C. Fassett (Torreya **42:** 180) has recognized a form (f. *spectabilis*) of this variety which he reports from Grand Marais.

L. VENOSUS Muhl., var. INTONSUS Butters and St. John, RHODORA **19:** 158. South Fowl Lake, BM 10839.—Top of bluff.

L. OCHROLEUCUS Hook. Watab Lake, BBl 433; Mountain Lake, BsH 13; South Fowl Lake, BsH 304; Pigeon River, BR 4552; Grand Portage, Be 519.—Cliffs, portage trails, aspen woods. Common throughout the wooded part of the state, not in the prairie region. It seems to favor fairly acid soil and thus is not found on the gray drift in the state.

OXALIDACEAE

OXALIS MONTANA Raf. *cf.* Fernald, RHODORA **22:** 144. Kimball Creek, R 2606; Northern Light Lake, BA 767; Grand Marais, L. S.

Cheney (June 20, 1891); Cascade River, T. S. Roberts (Aug. 2, 1879).—Deep mossy cedar swamps and other woods; infrequent.

GERANIACEAE

GERANIUM BICKNELLII Britton, *cf.* Fernald, RHODORA **37:** 296. RHODORA **43:** 35; Weber, RHODORA **44:** 91. Sawbill Lake, Bg 75; Loon Lake, D 168; Clearwater Lake, BA 216; Brule River, E. Loula 5; "Pike Lake" F. F. Wood (Aug. 1889); Lima Mountain, BA 883; South Fowl Lake, BM 10837; Royal River, BsH 351; Grand Portage, BAA 456, SS 12029; Mount Josephine, BA 162; Mt. Rose, SS 6065; Hovland, Be 617.—General in dry habitats. This appears to be the typical material with the long and short hairs intermixed on the pedicels.

POLYGALACEAE

POLYGALA PAUCIFOLIA Willd. (North) Brule River, E. Loula 6; Pigeon River, BR 4611.—Forest; locally abundant. This species has a curious distribution, being quite northern in Minnesota, but in general is not so, occurring at sea level to Baltimore and in the mountains to Georgia.

CALLITRICHACEAE

CALLITRICHE PALUSTRIS L. Cross River, R 6388; Poplar Lake, R 5444; Otter Lake, BA 803; Clearwater Lake, BA 944; Grand Portage, Be 497, Be 654, R 6276; Mineral Center, BA 212; Grand Marais, Conway MacMillan (July 1900); Mark Creek, C. B. Reif A20.—On moist ground of trails and wet mud or muck of stream and lake banks or bottoms, sometimes in lakes, sometimes in streams. Reported by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, p. 134) from practically all of the streams and rivers which are on the Lake Superior watershed in Cook County.

EMPETRACEAE

EMPETRUM NIGRUM L. Belle Rose Island, G. B. & F. Ownbey 1070.—"forming mats on moist ledge."

The plants of this collection are a close match vegetatively for F. J. Hermann 8196 (Eagle Harbor, Keweenaw Co., Mich.) and E. I. Roe, s. n., Oct. 20, 1929 (Pictured Rocks, Marquette Co., Mich.) and for eastern arctic and subarctic collections. The leaves of the older twigs are sharply reflexed; the twigs, including those of the year's growth, are glabrous except for short-stalked glands and the presence of an occasional simple hair. The bud scales are arachnoid pubescent along their margins, but the foliage leaves have glandular hairy margins only. The Ownbey collection cited above was made Aug. 14, 1948 and bears fully ripe berries which at the time of collection were "about 8 mm. in diam., deep purple-black," and in the pressed condition are glossy blue-black.

This collection is notable as the first of this species which has come to our attention from Cook County. Previously collected material in the Herbarium of the University of Minnesota all falls in the following species.

E. ATROPURPUREUM Fernald & Wiegand, RHODORA **15:** 214. Belle Rose Island, OO 1073; Susie Island, R 6036, R 6057, OO 1047; Lucille

Island, N 1659; Long Island, BAA 463, AA 517; Sailboat Island, AA 539, S 6007.—On rocky islands of the Grand Portage area; very local.

Fernald's report (Gray's Manual of Botany, ed. 8, 975) of *E. nigrum* from "n. Minn." is presumably based on material of *E. atropurpureum*, whose presence he does not recognize in Minnesota. However, when he and Wiegand originally described *E. atropurpureum* they said (*op. cit.*, p. 215) that "sterile specimens from Passage Island, Lake Superior (*W. S. Cooper, no. 107*[15]) may belong here." A study of the suite of collections cited above and of our Isle Royale specimens (*Cooper 390; Wheeler 689*) shows but little difference from authentic material cited by Fernald and Wiegand[16] (*op. cit.*). These all have in common the lanate white pubescence of the twigs, and a fringe of similar pubescence on the edges of the leaves; the leaves of the older twigs are but rarely reflexed, more commonly being loosely spreading. However, the Isle Royale and Cook County representatives of this species have occasional short-stipitate glands intermixed with the long lanate pubescence of the twigs. The fruits of these westernmost representatives of this eastern species have been collected but once in a completely ripe state (*Schuster 6007*) on September 8; the field notes indicate that they were "dull purplish" when collected and 6 mm. in diameter. In the dry state they are a dull bluish-purple, in marked contrast to the larger blue-black fruits of *E. nigrum* collected in the same area. Equally striking is the discrepancy of some three weeks in the time of maturation of the fruits in the two species. The Ownbeys collected *E. atropurpureum* and *E. nigrum* on the same island and on the same day (August 14); the fruits of *E. atropurpureum* are immature, pink and but 4 mm. in diameter while those of *E. nigrum* are dead ripe.

ANACARDIACEAE

Rhus radicans L. (*sens. lat.*).—Seen but not collected. Almost invariably associated with *Parthenocissus inserta*, sometimes so closely that the branches of the two intertwine. Our notes indicate that we have observed it on warm talus slopes below the cliffs of Watab Lake, Royal Lake, and in the Thunder Bay District on the east side of North Fowl Lake. It is rumored to occur sporadically along the portages of the old canoe route along the International Boundary. D. M. Stewart has told us of a patch on Lima Mountain and another at West Pike Lake.

CELASTRACEAE

Celastrus scandens L. Thunder Bay District, Ont. (North Fowl Lake), BABs 696.—Slaty talus slope.

Not yet collected in Cook Co., but to be expected. At this station it was associated with *Parthenocissus inserta*, poison ivy and *Lonicera dioica*, var. *glaucescens*.

[15] This is the number of the specimen in the Gray Herbarium, Cooper having renumbered the specimens which he sent there. It lies in the collections of the Herbarium of the University of Minnesota under its original field number—390.

[16] M. L. Fernald 277, Squaw Mountain, Piscataquis County, Maine, July 9, 1895; M. L. Fernald, s. n., Ledges, no. face of Boarstone Mt. (alt. 2000 ft.), Piscataquis County, Maine, Aug. 16, 1895; both sheets in Herb. Minn.

ACERACEAE

ACER SPICATUM Lam. Sea Gull Lake, L 3692; Poplar Lake, D 19; Canoe Lake, BsH 379; John Lake, BM 10796; North Fowl Lake, BABs 661; Grand Portage, Be 509, Be 567; Kimball Creek, R 2610; Grand Marais, BBl 478; Tofte, L 4839.—Common throughout.

A. SACCHARUM Marsh. Mineral Center, BR 4595, Be 694, BA 190.—Rare in Cook County.

At the locality cited above there is a sugar-bush some acres in extent with the characteristic species associated with hard maple further to the south. Some of these species are *Maianthemum canadense* var. *interius*, *Polygonatum biflorum*, *Smilacina racemosa* and *Betula lutea*. This sugar-bush is evidently a post-glacial relic stand, occurring as a well-preserved community on a moraine several miles inland from Lake Superior. It is of considerable interest since here in Cook County we find almost side-by-side with this relic of a more southern flora, arctic and sub-arctic species in the habitats appropriate to them, notably the cool, moist, open, north-facing cliffs of the nearby border lakes or on the low islands in the cold water of Lake Superior. A striking feature about the sugar-bush as a relic occurrence is that a whole association is here represented, while the arctic species occur as sporadic individuals. The sugar-bushes in the north are surely to be considered as post-Wisconsin relics, and by their presence present powerful evidence of the existence of post-Wisconsin climatic fluctuations which permitted the movement of whole communities.

The localization of *Acer saccharum* within Cook County (it is reported by D. M. Stewart in conversation as also occurring in the county elsewhere at the edge of the upland) seems to be related to its sensitiveness to frost, especially the young leaves. Along the lakeward edge of the upland in Cook County there is good air drainage, which should reduce the chances of spring and summer frosts such as occur inland. And along the lake shore there is a consistently low average air temperature which is likewise unfavorable to the growth of *A. saccharum*. In other words it is only at the edge of the Cook County upland that the sufficiently long frost-free growing season which will permit the survival of this species is to be found.

A. RUBRUM L. Lima Mountain, BA 869, D. M. Stewart (Sept. 15, 1944).—Rare and local.

BALSAMINACEAE

IMPATIENS CAPENSIS Meerb. *I. biflora* Walt. Sawbill Lake, Bg 76; Poplar Lake, BA (sight record, 1944); Hungry Jack Lake, BR (Aug. 1934), BAA 331a; West Pike Lake, BsH 185; Grand Portage, Be 650, Be 653, R 7904.—Common everywhere in moist places.

RHAMNACEAE

RHAMNUS ALNIFOLIA L'Hér. Sea Gull Lake, L 3633; South Fowl Lake, BABs 652; Pigeon River, BR 4559.—Roadsides and open woods; infrequent. D. M. Stewart tells us that it is common along the North Brule River and on the west side of Swamp Lake.

Ceanothus americanus L. Grand Marais, H. W. Slack (Jul. 1892).—Not recently observed in the county.

VITACEAE

Parthenocissus inserta (Kerner) K. Fritsch. *P. vitacea* (Knerr) Hitchcock. Watab Lake, BA 112; South Fowl Lake, BsH 314; Royal Lake, BsH 332; Thunder Bay Dist., Ont. (North Fowl Lake) BABs 700.—Talus slopes; infrequent. Regularly growing in association with *Rhus radicans*. Neither plant is common in the region, and both grow in profusion where they do occur, both as low plants, scrambling over talus slopes.

TILIACEAE

Tilia americana L.—Reported by D. W. Jenkins (*in litt.*, 10 Sep. 1948) as growing at Illgen City.

GUTTIFERAE

Hypericum majus (A. Gray) Britton. Sawbill Lake, Bg 73, Bg 74; Loon Lake, BR 6521; Lima Mountain, BA 690; Schroeder, BA 1067, O 984.—Stream margins, roadside ditches.

H. virginicum L., var. Fraseri (Spach) Fernald, Rhodora **38:** 434. Sawbill Lake, Bg 72; Hungry Jack Lake, BR 6356; Grand Portage, BA 970; Temperance River, C. B. Reif A10.—Edges of ponds, or even in 6 in. of water in river.

VIOLACEAE

Viola cucullata Ait. Grand Portage, S. Brown 4, BM 10874; Mineral Center, BR 4589, BA 194; Brule River, BR 4538.—Moist woods and stream margins. BA 194 and BM 10874 are f. *prionosepala* Brainerd.

V. Selkirkii Pursh. Kimball Creek, R 2602.—Shaded ravines. This has also been collected in quantity near Duluth.

V. pallens (Banks) Brainerd. Sea Gull Lake, L 3667; Loon Lake, BR 6518; Poplar Lake, R 5443, R 5446; Hungry Jack Lake, BR 6354; Clearwater Lake, BA 109; Mountain Lake, BAA 290, BAA 330; MacFarland Lake, BBl 341; North Fowl Lake, BABs 653; Pigeon Point, N 1639; Porcupine Island, AA 584; Susie Island, R 6034; Lucille Island, N 1647, BAA 354; Long Island, AA 544; Grand Portage, R 6024, BR 6277; Brule River, BR (Jul. 1, 1924); Devil's Track River, T. S. Roberts (Aug. 21, 1879); Carribeau River, BR 4496.—Moist woods, sphagnum bogs, moist rocks; very common.

BAA 354 and AA 544 are placed here with considerable hesitation; the plants have cordate leaves, 1½–3½ cm. long, which are rather acute with glabrous blades and bristly pubescent petioles; the peduncles of some cleistogamous flowers are prostrate, some are erect; the ripe seeds are 1½ mm. long, and dark brown (!).

V. incognita Brainerd. Sea Gull Lake, L 3655, L 3704; Gunflint Lake, BBl 385a; Poplar Lake, BA 843; Watab Lake, BA 219; Clearwater Lake, N 1696; Mountain Lake, BAA 300, BBsH 27; East Pike Lake, BsH 221; Mineral Center, BR 4578, Be 689; Grand Marais, BA 764.—Moist woods, portage trails, etc.; common.

BsH 221 is possibly a hybrid with *V. renifolia*. It has the leaf shape of *V. incognita*, and the upright growth of that species, but the underground parts are intermediate. The cleistogamous flowers more nearly resemble those of *V. renifolia*.

V. RENIFOLIA A. Gray.

—*typical form with leaves pubescent above:* Poplar Lake, L. W. Orr 19; Mountain Lake, BsH 175.

—*towards* var. BRAINERDII, *with a few hairs along the veins above:* Mountain Lake, BBsH 54.

—var. BRAINERDII (Greene) Fernald, RHODORA **14:** 88; *hairy on petioles and along veins of leaves on under side:* Sea Gull Lake, L 3668, L 3686; Gunflint Lake, BBl 385; Clearwater Lake, BR 6367, N 1706, BA 94, BBsH 1, BsH 162, BA 956; Little Caribou Lake, BsH 402; Mountain Lake, BAA 236, BAA 247, BAA 254; John Lake, BM 10782.

—*leaves glabrous below but ciliate on petiole and base of leaf:* Hungry Jack Lake, BAA 335; Clearwater Lake, BR 6365; Mountain Lake, BBsH 25, BBsH 79.

—*leaves wholly glabrous on both sides and on the petioles:* Clearwater Lake, N 1695, Butters & Wherry (Jun. 29, 1935); Mountain Lake, BBsH 28, BBsH 127.—Moist woods; general.

V. PENSYLVANICA Michx., var. LEIOCARPA (Fern. & Wieg.) Fernald, RHODORA **43:** 616. Grand Portage, S. Brown (1935); Mineral Center, BR 4588; Hovland, BR 4629.—Moist hardwoods; not common.

V. ADUNCA J. E. Smith

—*normally pubescent:* Watab Lake, BAA 227; Clearwater Lake, N 1708, BBl 417; Little Caribou Lake, BsH 401; Pigeon Point, BAA 430 (some plants nearly glabrous); Clark's Bay, BAA 395; Morrison Bay, BBl 359; Grand Portage, NBr 3229a, BM 10869; Mount Josephine, BR 6324, BA 169; Brule River, NBr 3220; Thunder Bay Dist., Ont. (North Fowl Lake) BABs 687.

—*slightly pubescent to nearly glabrous:* Clearwater Lake, Butters & Wherry (June 29, 1935), BA 75; Mountain Lake, BBsH 143; Lima Mountain, BA 887; South Fowl Lake, BM 10826; Pigeon Point, BAA 408.

—var. GLABRA Brainerd. Sea Gull Lake, L 3638; Morrison Bay, R 6055; Tofte, L 4836.

—var. MINOR (Hook.) Fernald, RHODORA **51:** 57. *V. labradorica* Schrank. Grand Portage, BR 6293. Cliffs of the Border Lakes, shore rocks of Lake Superior, sphagnum bogs; general. In Cook County there is a complete series from the usual retrorsely, finely pubescent form to var. *glabra*. The later leaves are usually more pubescent than the earlier ones.

V. TRICOLOR L. Grand Portage, Be 680.—An established adventive. This small-flowered pansy is only somewhat improved by cultivation over the wild Johnny-Jump-Up, and is a far cry from the lushly luxuriant pampered plush-petalled pansy of our modern gardens. It seems to be the typical phase, coming very close to var. *vulgaris* Koch (*cf.* Hegi, Ill. Fl. Mitteleur., vol. 6: 602).

It has been growing with a minimum of cultivation in the Grand Portage area for at least a century. According to Mrs. J. McLean, long-time resident and post-mistress of Grand Portage, it was transplanted to Susie Island about 1905 by Mrs. E. Falconer, wife of a pioneer mine operator. She found it growing without cultivation on the site of the old, abandoned Parker farm on the U. S. side near the mouth of the Pigeon River. The Parkers are said in turn to have obtained it in the 1850's from the garden of the Hudson's Bay Company outpost which became the site of the Parker farm. How long before this it was introduced is an open question.

ELAEAGNACEAE

Shepherdia canadensis (L.) Nutt. North Fowl Lake, BABs 664; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 688.—Talus slopes and open pine woods; very uncommon in the state as a whole.

ONAGRACEAE

Epilobium angustifolium L. Sawbill Lake, Bg 70; Rove Lake, L. S. Cheney (July 15, 1891); Long Island, AA 552; Grand Portage, Be 487, S. Brown (1935).—Roadsides. AA 552 is the wide-leaved phase.

E. leptophyllum Raf. *cf.* Fernald, Rhodora **46:** 382. Clearwater Lake, N 1691; Grand Portage, BA 965; Cascade, BA 754; Schroeder, BA 1057.—Edge of the lakes and ponds, roadside ditches.

E. palustre L. Susie Island, OO 1046.—Sphagnum bog. A broad-leaved phase.

E. glandulosum Lehm., var. adenocaulon (Hausskn.) Fernald, Rhodora **20:** 35. Sawbill Lake, Bg 3, Bg 69; West Bearskin Lake, BR 6363; Clearwater Lake, BA 954; Lima Mountain, BA 892; West Pike Lake, BsH 198; Porcupine Island, OO 1049; Belle Rose Island, OO 1060; Grand Portage, Be 538, Be 612, Be 627; Hovland, Be (Aug. 22, 1929).—Roadsides, old trails, moist areas near springs.

Oenothera biennis L. Grand Marais, T. S. Roberts (Aug. 1879).

O. biennis, var. hirsutissima Gray. *O. strigosa* (Rydb.) Mack. & Bush. Hungry Jack Lake, BsH 420; South Fowl Lake, BsH 324; Royal Lake, BsH 272.—Cliffs, sometimes locally abundant.

O. parviflora L. *O. muricata* L. West Pike Lake, BsH 200; Cascade, BA 761; Thunder Bay Dist., Ont. (Pigeon Bay), AA 601.—Dry and sunny talus slopes and cliffs, old gravel beaches.

O. perennis L. *cf.* Munz, Bull. Torrey Bot. Cl. 64: 302. Granite River, L. S. Cheney (July 20, 1891); Pigeon River, BR 6270.

Circaea alpina L. Sawbill Lake, Bg 68; Poplar Lake, L. W. Orr 11; Leo Lake, BAA 334; Alder Lake, BBl 476; Mountain Lake, BAA 302, BBsH 88; West Pike Lake, BsH 202; Royal Lake, BsH 234; Pigeon River, L. S. Cheney (July 9, 1891); Mineral Center, Be 657; Grand Portage, BA 968; Kimball Lake, E. Loula 14.—Portage trails, wooded valleys, moist woods; general.

HALORAGACEAE

Myriophyllum alterniflorum DC., var. americanum Pugsley, Jour. Bot. 76: 51. Poplar Lake, BA 838; "Bearskin Lake," U. S. F. S. (Aug.

28, 1935); Temperance River, C. B. Reif A4.—Sand or rock bottomed streams; locally abundant. Reported as *M. alterniflorum* by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, 134) from the Cross and Temperance Rivers.

M. EXALBESCENS Fernald, RHODORA **21:** 120. East Pope Lake, "L. W. K." 16.

Reported by Smith and Moyle (*loc. cit.*) from the Devil Track River; they characterize it (*op. cit.*, p. 139) as rare.

HIPPURIDACEAE

HIPPURIS VULGARIS L. Grand Portage, BA 966.—Shallow pool.

Reported by Smith and Moyle (*loc. cit.*) from the Cross, Poplar, Cascade, Devil Track and Brule Rivers. These authors do not distinguish the following variants.

H. VULGARIS, f. FLUVIATILIS (Cosson & Germain) Glück. Otter Lake, BA 802; Baldy's Creek, C. B. Reif A32.—Slow stream; occasional.

H. VULGARIS, var. RHAETICA (Zschokke) Gremli *cf.* H. Glück *in* Pascher's Süsswasser-Flora Mitteleuropas 15: 339. Loon Lake, BR 6516; Grand Portage, BR 6294; Grand Marais, L. S. Cheney (June 29, 1891).—Shallow streams, pools. Hegi (Fl. Mittel-Eur., V, 2: 906) refers this to "f. *Raetica* (Zschokke) Gremli." Since we have not been able to locate the original publication of the name, its spelling and authorization remain uncertain.

This diminutive-leaved phase is probably worthy of formal rank only, especially since Hegi (*op. cit.* p. 907) states that H. Schinz found that it returned to f. *typica* when transplanted to Zürich (from Graubünden). Our plants are but 10–16 cm. long, with leaves 4–6 mm. long and 0.3 to 0.5 mm. wide. Since some of the specimens are fruiting there seems to be no question of the plants being mature. It seems to be the commoner form of the species in the county.

ARALIACEAE

ARALIA RACEMOSA L. Hungry Jack Lake, BR 6332, BBl 452.—Very uncommon.

A. HISPIDA Vent. Sawbill Lake, Bg 67; Hungry Jack Lake, BsH 418; Poplar Lake, D 103; Rove Lake, BBsH 106; Pigeon Point, N 1622; Magnet Island, BR 6237; Little Brick Island, OO 1079; Susie Island, AA 560, OO 1043; Grand Portage, R 5989, Be 630; Hovland, BR 4635.—Dry rocks of cliffs and islands.

A. NUDICAULIS L. Sea Gull Lake, L 3615; Poplar Lake, D 48; Clearwater Lake, BA 55; Grand Portage, Be 560.—Abundant in forests throughout the region.

UMBELLIFERAE

SANICULA MARILANDICA L. Mountain Lake, BAA 331, BBsH 23; John Lake, BsH 269; Grand Portage, Be 520; Hovland, BR 4633.—Clearings, wet woods, portage trails; occasional.

OSMORHIZA CLAYTONI (Michx.) Clarke. Mineral Center, BR 4590.—Isolated stand of hard maple; very local.

This is distinctly a plant of the hardwood forests of central and southern Minnesota.

O. OBTUSA (Coult. & Rose) Fernald, RHODORA **4:** 153. Watab Lake, BA 108, BBsH 114; Mountain Lake, BAA 303; Royal Lake, BM 10851.—Moist woods and thickets; local and rare.

This is one of the distinctly western species which has also been found about the Gulf of St. Lawrence. It adds another to the long list of plants which find intermediate stations on the Upper Great Lakes.

ZIZIA APTERA (Gray) Fernald, RHODORA **41:** 441. Mineral Center, BR 4562; Schroeder, BA 1080.—Roadsides; infrequent.

CARUM CARVI L. Susie Island, BBl 347; Grand Portage, BM 10882.—Near houses and along roadsides; adventive and established. Also noted but not collected in the village of Grand Marais where it is a common weed, and again along the highway ten miles to the west.

SIUM SUAVE Walt. *S. cicutaefolium* Schrank *cf.* Blake, RHODORA **17:** 131. Sawbill Lake, Bg 66; Gunflint Lake, BR 6387; Birch Lake, D 66; Devil's Track River, T. S. Roberts (Aug. 18, 1879); Cascade River, C. B. Reif A18; Temperance River, C. B. Reif A27.—Lake shores and shallow streams; locally abundant to scarce. Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, p. 134) report it from the Temperance, Poplar, Cascade, Devil Track and Brule Rivers.

PASTINACA SATIVA L. Susie Island, OO 1136; Grand Portage, S. Brown (1935).—Weed in clearing. Ownbey says of his 1136 "apparently becoming naturalized at this site and at other localities on [Susie] island."

HERACLEUM MAXIMUM Bartr. *H. lanatum* Michx. Grand Portage, Be 578.—Ubiquitous in moist places; reaches a height of 8 feet.

CORNACEAE

CORNUS CANADENSIS L. Sea Gull Lake, L 3613; Sawbill Lake, Bg 65; Poplar Lake, L. W. Orr 13, D 13; South Fowl Lake, BABs 618; Royal River, BsH 290; Pigeon Point, N 1627; Grand Portage, Be 500, S. Brown 15; Hovland, OO 1004; Poplar River, T. S. Roberts (Aug. 6, 1879).—Roadsides, portage trails, fir-birch-poplar woods; frequent.

C. STOLONIFERA Michx. Poplar Lake, L. W. Orr 16; South Fowl Lake, BABs 647; Pigeon Point, B (Sep. 3, 1927); Susie Island, OO 1123; Grand Portage Island, R 6032; Tofte, R 7836, R 7837, R 7850.—Beach margins, moist openings and thickets.

C. STOLONIFERA Michx., var. BAILEYI (Coult. & Evans) Drescher. Winchell Lake, BA 134; Rove Lake, BBl 426; South Fowl Lake, BABs 644, BABs 646; Clark's Bay, B (Sep. 3, 1927); Grand Portage, Be 501, Be 528, BR6217, S. Brown 23; Hovland, R 5460; Brule River, BR 4545; Grand Marais, R 5976; Lutsen, L 4786; Thunder Bay Dist., Ont. (Mountain Lake) BAA 312.—Beaches, stream banks, Norway pine woods, talus slopes, etc.

While Fosberg (Bull. Torrey Bot. Cl. **69:** 583) has reduced this variety to formal status under his *C. sericea*, it is surely worthy of consideration as a variety because it has a range quite different from that of *C. stoloni-*

fera, although overlapping with it. Dr. B. Lennart Johnson, who has made extended field and cytological studies (unpubl.) of this group, feels that on the basis of his evidence the varietal status is fully justified.

The two following collections are intermediate between *C. stolonifera* and *C. stolonifera* var. *Baileyi:*—Grand Portage, Be 565; Hovland, R 5460. In these collections the pubescence is in part loose, but much of it is also appressed.

C. RUGOSA Lam. Sea Gull Lake, L 3628; Hungry Jack Lake, BsH 421; Watab Lake, BAA 221; Little Caribou Lake, BsH 393; Mountain Lake, BBsH 71; West Pike Lake, BsH 194; East Pike Lake, BsH 225; John Lake, BM 10784; South Fowl Lake, BsH 320, BM 10835; Royal River, BsH 334; Mount Rose, R 7907; Carlton Peak, T. S. Roberts (Aug. 25, 1879); Thunder Bay Dist., Ont. (Pigeon Bay), AA 607.—Cliffs, talus slopes, pine woods.

C. ALTERNIFOLIA L. f.—Reported by Juni (*op. cit.*) from the Poplar River. D. M. Jenkins (*in litt.*, Sept. 10, 1948) mentions its occurrence at Hovland and Schroeder.

PYROLACEAE

CHIMAPHILA UMBELLATA (L.) Bart., var. CISATLANTICA Blake. Sea Gull Lake, BA 918; Sea Gull River, N 1678; Sawbill Lake, Bg 56; Granite River, F. F. Wood (Jul. 22, 1891); Poplar Lake, L. W. Orr 32, D 32, SS 6022; Birch Lake, D 59; Clearwater Lake, BsH 165; Lima Mountain, BA 888; Mountain Lake, BBsH 129; Northern Light Lake, BA 773; West Pike Lake, BsH 188; Royal River, BsH 331; Devil's Track Lake, T. S. Roberts (Aug. 16, 1879).—In woods along portage trails, tops of cliffs and hills, and stream banks; widely distributed but not particularly abundant.

MONESES UNIFLORA (L.) Gray. Sawbill Lake, Bg 63; Alpine Lake, L 3664; Gunflint Lake, SS 6010; Poplar Lake, L. W. Orr 31; Birch Lake, D 191; Partridge Lake, BA 801; Hungry Jack Lake, BAA 338; Rove Lake, L. S. Cheney (Jul. 16, 1891), BBsH 95; Mountain Lake, BBsH 79; Moose Lake, BAA 292; Royal Lake, BsH 237, BM 10853; Susie Island, OO 1029; Grand Portage, Be 697, F. K. Butters & E. Wherry (Jun. 30, 1935), S. Brown 36; Mineral Center, BR 4601; Grand Marais, T. S. Roberts (Jul. 31, 1879).—Moist woods and portage trails.

PYROLA SECUNDA L. *sens. lat.* Sawbill Lake, Bg 57; South Lake, L. S. Cheney (Jul. 18, 1891), F. F. Wood (Jul. 18, 1891); Watab Lake, BAA 232; John Lake, BM 10810; Grand Portage, Be 535, R 5988; Kimball Creek, BR 4670; Grand Marais, T. S. Roberts (Jul. 30, 1879); Black Point, T. S. Roberts (Aug. 24, 1879).—Fir-birch woods, portage trails, etc.

The Cheney-Wood collections are recorded above as for South Lake although the labels on their specimens give the locality as "South Fowl" and "South Ford" Lakes respectively. On the basis of a detailed itinerary derived from an analysis of the labels for their specimens in the Herbarium of the University of Minnesota, and from a knowledge of the country, the writers are convinced that Cheney and Wood were at South Lake on July 18, 1891 and that "South Fowl Lake" and also "South Ford Lake"

is to be considered as a *lapsus calami* on their respective parts, since vibration to this degree is sufficient to involve a three-day canoe journey in either direction. Unfortunately Cheney's published account (Wisc. Acad. Sci., Arts and Letters 9: 239) places their collection of this species at Rove Lake!

None of our specimens have thoroughly typical leaves, falling instead between the typical material with its more pointed and narrower leaves and var. *obtusata*.

P. secunda, var. obtusata Turcz. Clearwater Lake, BBl 399; Mountain Lake, BBsH 70; MacFarland Lake, BBl 333; Grand Portage, R 5998, R 6008.—Woods and cliffs.

This extreme is pretty well marked in leaf shape and grades toward the typical extreme, the average of which is not fully achieved in Minnesota.

P. minor L. Moose Lake, BAA 284; Pigeon Point, BAA 404; Susie Island, R 6033b.—Moist woods, bogs, and portage trails.

P. virens Schweigg. *P. chlorantha* Sw. *cf.* Fernald, Rhodora **43:** 167 *and* Rhodora **22:** 49. Sea Gull Lake, L 3636, L 3654; Sawbill Lake, Bg 59; Gunflint Lake, BBl 379; Poplar Lake, SS 6023; Watab Lake, BA 102, BAA 238, BBsH 14; Clearwater Lake, BR 6366, BA (Jun. 22, 1936), BBsH 3; West Pike Lake, BsH 159a; John Lake, BM 10803; Grand Marais, T. S. Roberts (Jul. 30, 1879); Black Point, T. S. Roberts (Aug. 24, 1879).—Moist cliffs and ledges, portage trails, white pine, birch, or balsam-fir woods.

P. virens, f. paucifolia Fern. Rhodora **43:** 167. Sea Gull Lake, L 3614; Gunflint Lake, BBl 387; Hungry Jack Lake, BAA 336; Clearwater Lake, BA 126a; Mountain Lake, BBl 539, BBsH 61; Grand Marais, N. L. Huff (Jul. 10, 1925); Carribeau River, BR 4516.—Same habitat as the species, but less abundant.

This material is markedly variable, and, while it all falls reasonably well within the range of variation allowed by Fernald in his original description (Rhodora **22:** 51), there is a variety of combinations of characters represented by the various collections. Thus BA 126a and BAA 336 have small calyx lobes and fair-sized leaves, while others are almost completely aphyllous, as L 3614, or the much reduced leaves may be broadly orbicular instead of triangular flabellate (BBsH 61). The correlation between small calyx lobes and small leaves is none too perfect.

P. elliptica Nutt. Sawbill Lake, Bg 60; Hungry Jack Lake, BAA 337; Mountain Lake, BBl 440, BBsH 134; West Pike Lake, BsH 192; Grand Portage, Be 518, BAA 457.—Portage trails, cliffs and forest floor in moist white birch and balsam woods.

P. rotundifolia L., var. americana (Sweet) Fern. Rhodora **22:** 122. Sawbill Lake, Bg 55; Grand Portage, R 6070.—Infrequent; woods.

P. asarifolia Michx. (typical) *cf.* Fernald, Rhodora **6:** 178. Sea Gull Lake, L 3637; Sawbill Lake, Bg 58; Clearwater Lake, BsH 159; Mountain Lake, BAA 274, BBsH 120; South Fowl Lake, BsH 276, BsH 322, BM 10829; Royal River, BsH 356; Pigeon Point, BAA 405; Susie Island, BBl 351; Grand Portage, Be 557, BBl 369, BA 146, BA 209, BM

10870; Mount Josephine, BA 175; Mount Rose, S. Brown, 30; Grand Marais, L. S. Cheney (Jul. 1, 1891).—Portage trails, cliffs and forest floor in birch, poplar and balsam-fir woods.

MONOTROPA UNIFLORA L. Sawbill Lake, Bg 64; West Pike Lake, BsH 209; Poplar Lake, D 93a; Birch Lake, BA 823; Brule River, E. Loula 23; Royal River, BsH 289; Susie Island, OO 1021; Grand Portage, Be 658; Mineral Center, Be (Aug. 22, 1929); Hovland, OO 1005.—Moist woods and portage trails; rather common.

M. HYPOPITHYS L. Hovland, R. M. Schuster (Sept. 1, 1947, sight record in bog at edge of Bog Bay); Carlton Peak, T. S. Roberts (Aug. 25, 1879).—Rare.

ERICACEAE

LEDUM GROENLANDICUM Oeder. Sea Gull Lake, L 3691, BA 907; Cross River, BA 914; Brule River, E. Loula 4; Birch Lake, BA 822, D 58; Poplar Lake, D 102; Pigeon Point, BBs 728; Lucille Island, BAA 342; Grand Portage, Be 614, S. Brown 45, BM 10881; Reservation River, BR 4574; Grand Marais, BR 4648.—Spruce-tamarack swamps, sphagnum bogs, jack-pine woods; locally abundant, but not general.

KALMIA POLIFOLIA Wang. Sea Gull Lake, L 3669; Moose Lake, BAA 283; Grand Portage, Be 700; Schroeder, NBr 3201.—Sphagnum bogs.

ANDROMEDA GLAUCOPHYLLA Link. Sea Gull Lake, BA 906; Long Island, BAA 467, AA 520, OO 1109; Grand Marais, L. S. Cheney (Jun. 24, 1891); Schroeder, NBr 3200.—Except in the acid rock area of Cook County it is infrequent because of the limited number of sphagnum bogs.

CHAMAEDAPHNE CALYCULATA (L.) Moench. *sens. lat.* Sea Gull Lake, L 3706, BA 913; Otter Lake, BA 796; Birch Lake, D 54; Poplar Lake, D 86, D 108; Susie Island, N 1652; Lucille Island, OO 1108; Porcupine Island, BR 6245, OO 1051; Sailboat Island, OO 1098; Grand Portage, Be 636; Schroeder, NBr 3202.—Infrequent as compared with its occurrence in the counties further west, because of the relatively restricted number of sphagnum bogs in Cook Co.

EPIGAEA REPENS L. Sawbill Creek, D. M. Stewart (Oct. 23, 1944).—Logged-over white pine woods; rare.

Mr. D. M. Stewart, who has had much field experience in Cook County in connection with his position in the U. S. Forest Service, says on the label of the above collection, "Not common in Cook County to my knowledge." The writers had noted the apparent absence of *Epigaea* and looked for it throughout each field season, without success.

GAULTHERIA PROCUMBENS L. Sea Gull Lake, BA (sight record only).—Rare.

G. HISPIDULA (L.) Bigel. *Chiogenes hispidula* (L.) T. & G. Sea Gull Lake, L 3652; Sawbill Lake, Bg 61; Poplar Lake, L. W. Orr 14, BAA 326a; Clearwater Lake, BA 126; Pigeon Point, N 1636; Porcupine Island, BR 6241; Grand Portage, R (Aug. 12, 1929), BR 6302; Devil's Track River, T. S. Roberts (Aug. 15, 1879).—Portage trails, sphagnum bogs, spruce-tamarack swamps, cedar forest and balsam woods; very common.

Arctostaphylos Uva-ursi (L.) Spreng. (typical). *cf.* Fernald and Macbride, Rhodora **16:** 211. Sea Gull Lake, L 3707; West Bearskin Lake, D 144; Pigeon Point, B (Sep. 3, 1927), BR 6229, NBr 3234a; Mount Josephine, BR 6318, BA 1045.—On acid rocks of hills and lake shore.

A. Uva-ursi, var. coactilis Fern. & Macbr., Rhodora **16:** 212. Pigeon Point, R 6057, BR 6226, BBs 725; Susie Island, BBl 3512, AA 561; Long Island, AA 515, AA 516; Grand Portage Island, R 6030a; Mount Josephine, BA 189.—On acid rocks of hills and lake shore. AA 516 is the narrow-leaved phase, and AA 515 the broad-leaved phase. The pubescence of BA 189 is rather long.

A. Uva-ursi, var. adenotricha Fern. & Macbr., Rhodora **16:** 213. Watab Lake, BA 101; North Fowl Lake, BABs 667; Pigeon Point, R 6080, BR 6227.—Perhaps not as calcifuge as the typical material and var. *coactilis*.

Vaccinium uliginosum L. *sens. lat.* Long Island, AA 507; Grand Portage, L. S. Cheney (Jul. 4, 1891).—Near or on the shore rocks of Lake Superior; very rare, not known elsewhere in Minnesota. Cheney's material has small, broadly oblanceolate leaves, pedicels in abundantly flowering material 1–2 mm. in length, leaves 7–14 mm. long and 3–8 mm. wide, leaves slightly pubescent (less so than AA 507), stamens smaller than in AA 507 but with ascending appendages as long as or slightly longer than the tubules.

AA 507 has leaves varying from broadly oblanceolate to broadly obovate, pedicels of the half-ripe, dried up fruits 3.5 or more commonly 4.5 mm. long, leaves 1.2 to 3 cm. long and 7–21 mm. wide, leaves puberulent below, appendages of the anthers longer than the tubules and ascending. An erect shrub, 2–3 ft. high.

Four different collections in the Herbarium of the University of Minnesota from Isle Royale also exhibit a wide range of variation in this species. The leaves vary in length from 6–18 mm. and in width from 3–10 (15) mm. The pedicels in flowering material are from 1.5–4 mm. long and in fruit are rather uniformly 5–5.5 mm. long. The stamens have ascending appendages which are slightly shorter than, to equal in length to the tubules. The leaves and twigs are strongly puberulent in all four of the collections, being a little more so than in most of the European material available (some of which is even glabrescent), but finds a match in some Scandinavian specimens.

Each of the characters, namely, position and relative length of the appendages, size of stamens, size and shape of leaves, relative puberulence of under side of leaves and of young twigs, habit of plant—appears to vary practically independently of the others (*cf.* Fernald Rhodora **25:** 25). At present it is impossible to say which of these characters vary in response to environmental differences and which in response to genetical constitution. Obviously, for the material from northwestern Lake Superior, Malte's key (Rhodora **36:** 184) is not particularly useful since his major differentiation is based on leaf size, a respect in which our

material varies greatly. Until a great deal more material from all parts of the enormous range of this plant has been studied it seems futile to assign our specimens to any one named variety. This is especially the case because it is an extremely rare plant in our region, each collection representing a different individual with a different combination of characteristics, one, AA 507, having the largest leaves of any of the sheets from Europe or America in the Herbarium of the University of Minnesota.

V. CESPITOSUM Michx. Poplar Lake, R 5435; Watab Lake, BAA 224; Clearwater Lake, BA 85; Mountain Lake, BBsH 76; John Lake, BM 10799; South Fowl Lake, BM 10838.—Cliffs, talus slopes, bluffs, morainal ridges; infrequent, occurring only as a few individuals at each of the stations listed. Our material agrees well with the long-tubed and long-appendaged eastern material in contrast to the western material which appears on casual examination to have shorter tubes and the appendages somewhat shorter than the tubes.

V. MYRTILLOIDES Michx. *V. canadense* Kalm. Poplar Lake, D 4, D 63, D 65; North Fowl Lake, BABs 673; Pigeon Point, BBs 730; Porcupine Island, BR 6244; Grand Portage, Be 583, S. Brown 21, R 7864; Mount Josephine, BR 6328; Grand Marais, BR 4649, BA 47, BM 10770.

V. ANGUSTIFOLIUM Ait. Sea Gull Lake, L 3708; Poplar Lake, D 105; Clearwater Lake, N 1714; Pigeon Point, NBr 3233a, BBs 729.—Cliffs, dry woods and shore rocks; abundant locally, chiefly on the more acid sites.

V. VITIS-IDAEA L., var. MINUS Lodd. *cf.* Fernald, RHODORA **4:** 231. Brule River, R 5458; Pigeon Point, BR 6251; Porcupine Island, BBs 748, OO 1009; Susie Island, B (Sep. 2, 1927), R 6038, BBl 354, AA 566; Lucille Island, N 1651, BAA 343, BAA 344, BAA 381; Long Island, BAA 466, AA 523; Grand Portage, Be 696; Hovland, BR 4572; Grand Marais, BR 4646, N. L. Huff (Jul. 9, 1925), BM 10773.—Ledges, rocks within and at edge of spruce-tamarack and spruce woods; locally very abundant although decidedly limited in occurrence.

BAA 344 from Lucille Island and BBl 354 from Susie Island, the latter with branches up to 2.4 dm. and the former with branches from 1.3 to 1.5 (rarely 2.0) dm. high, represent the upper extreme in the range of variation of the American variety, being more similar in habit to the bulk of the European (especially Scandinavian) material in the Herbarium of the University of Minnesota than to the rest of the American material. Both collections also have leaves larger than usual, BAA 344 having them up to 1.9 (rarely 2.0) cm. in length, and up to 8.0 (rarely 8.5) mm. in width, while BBl 354 tends to be about 1 mm. less in its leaf dimensions. The leaves are thick like the other American rather than the European material. Most of the specimens from Cook County and the state are the dwarfed, microphyllous state of the variety.

While the large forms mentioned above were found on moist rocks, on the nearby tussocks of knee-deep sphagnum there occurred plants of the much dwarfed phase (represented by BAA 343), plants which appeared to be running a losing race with the encroaching sphagnum.

Some flowers of AA 566 are distinguished from the usual material by the presence of short, downward-pointing appendages which may be as much as 0.6 mm. long. It is not a consistent character and may be absent from other flowers within the same inflorescence. It is a condition occurring sporadically in both American and European plants but is not ordinarily illustrated or referred to—Gray's Manual (ed. 7), for instance, even characterizes the section *Vitis-Idaea* (p. 641) as having the anthers awnless. On the other hand, Bentham and Hooker (Genera Plantarum, vol. 2, pt. 2, 1876, p. 574) describe the anthers in this section as "dorso muticae v. breviter aristatae."

V. Oxycoccos L. Sea Gull Lake, L 3650, BA 908; Porcupine Island, BBs 745; Sawbill Lake, Bg 62; Belle Rose Island, OO 1066; Susie Island, N 1650; Grand Portage, Be 702, F. K. Butters & E. Wherry (Jun. 29, 1935), S. Brown 39; Hovland, BR 4573; Kelso Lake, E. Merritt (Jul. 1940).—Spruce-tamarack and cedar swamps, sphagnum bogs, exposed moist mossy areas on rocky shore islands; not common because of limited extent of favorable habitats.

PRIMULACEAE

Primula intercedens Fernald, Rhodora **30:** 86. Pigeon Point, BAA 429, BA 442, BAA 443; Clark's Bay, BR 6250; Porcupine Island, AA 571 (smaller form), AA 574 (larger form); Susie Island, B (Sep. 1927), R 6046, R 6062; Lucille Island, N 1665, BAA 345; Long Island, AA 511, AA 522; Sailboat Island, AA 540; Grand Portage, R 6029; Grand Marais, T. S. Roberts (Aug. 14, 1879), Lyon 924, BM 10771; Tofte, L 4775; Temperance River, SS 6026.—Moist rocks of the islands and shores of Lake Superior; locally fairly abundant.

In 1928 Professor Fernald (Rhodora **30:** 87), in establishing *P. intercedens*, stated that it "is here proposed without full confidence in its specific value." In his treatment he cites 16 collections from the Great Lakes region, including six from Minnesota and two from Isle Royale. Since then the amount of available material in the Herbarium of the University of Minnesota from the Minnesota shore of Lake Superior and from Isle Royale has increased to some 24 sheets, but the status of *P. intercedens* still remains uncertain.

The specimens of *P. mistassinica* from our whole series of *Primula* of Cook County may be easily segregated. There remains a somewhat heterogeneous residue. It is this residue which we refer to *P. intercedens*. While *P. intercedens* is always more or less farinose, some of our specimens (BAA 443 and Lyon 924) are conspicuously so; the majority must be examined with a hand lens to discover the farinosity (of a distinct lemon-yellow cast in dried specimens). In habit the well-grown plants which we refer to *P. intercedens* are somewhat stiffer and heavier than in *P. mistassinica*, have peduncles 1 mm. or more in diameter, and pedicels rather notably fastigiate. It shares with *P. mistassinica* the truncate teeth of the margins of the dehisced pods. As Professor Fernald has pointed out, the bracts of *P. intercedens* are generally more or less gibbous

("scarcely gibbous"), but sometimes they closely approach the *P. mistassinica* type in which the bracts are usually not at all saccate. Occasional plants of *P. mistassinica*, both from the Lake Superior region and elsewhere, have the bracts extremely saccate. The seed characters are also difficult to use—more so than the keys would suggest. While the seeds of *P. intercedens* are rather angular (when dry), they may be quite diverse in size and form even when derived from the same capsule. The rugose nature of the seed coat is very difficult to determine even under the high power of the binocular, and thus does not provide a very useful distinguishing character. In general the narrower and oblanceolate leaves of *P. intercedens* seem to set it off from *P. mistassinica*.

It would appear that Professor Fernald's observation that *P. intercedens* and *P. mistassinica* "have become much crossed" in the Great Lakes region is amply borne out by the additional circumstantial evidence that has come to hand in the past few years.

P. MISTASSINICA Michx. *cf.* Fernald, RHODORA **30:** 88. Clark's Bay, NE 2328, BAA 386; Porcupine Island, OO 1010; Susie Island, S 6045; Grand Portage, Butters & Wherry (June 29, 1935), S. Brown 38; Grand Marais, BR 4643, Butters & Wherry (June 28, 1935), BA 37, BA 38, BA 39, BA 40, BM 10775.—Crevices of rocks near the shore of Lake Superior, also peaty soil and in cedar bog; locally fairly abundant. It also occurs in Lake and St. Louis Counties along the shore of Lake Superior, and there is an isolated station for it at Stillwater on the St. Croix River in the southeastern part of the state.

BA 40 has the appearance of *P. mistassinica* as far as leaf shape, vesture and in other respects except that the bracts have rather deep pockets about a third of a millimeter in depth and the calyx is short, being about 3–3½ mm. in length. While the largest number of flowers in an umbel is indicated as 10 by Fernald (*loc. cit.*) the material from Stillwater has from 10–15 flowers in the umbels, the plants being relatively large as well.

LYSIMACHIA TERRESTRIS (L.) BSP. Sawbill Lake, Bg 54; Horseshoe Lake, L. W. Orr 28; Leo Lake, BR 6341; Alder Lake, BsH 387; South Fowl Lake, BsH 298; Royal River, BsH 261; Grand Portage, BA 989; Grand Marais, T. S. Roberts (Aug. 12, 1879).—Lake and pond shores.

L. THYRSIFLORA L. Sea Gull Lake, L 3705; Round Lake, C. B. Reif A10; Watab Lake, BAA 318; South Fowl Lake, BABs 622.—Wet, swampy shores; rather uncommon, probably because of a lack of suitable habitats.

TRIENTALIS BOREALIS Raf. Sea Gull Lake, L 3612; Poplar Lake, L. W. Orr 9, D 74; Clearwater Lake, Butters & Wherry (June 29, 1935), BA 59; South Fowl Lake, BABs 624; Susie Island, BBl 348; Grand Portage, Be 669, S. Brown 13; Grand Marais, T. S. Roberts (July 30, 1879), L. S. Cheney (June 20, 1891); Pike Lake, E. Loula 16.—Moist woods; general.

OLEACEAE

FRAXINUS PENNSYLVANICA Marsh. Gunflint Lake, BBl 372.—Sandy lake shore; not very common in Cook Co.

F. PENNSYLVANICA, var. SUBINTEGERRIMA (Vahl) Fernald. *F. pennsylvanica*, var. *lanceolata* (Borkh.) Sarg. Gunflint Lake, BBl 373.—Sandy lake shore; not very common in Cook Co.

F. NIGRA Marsh. Partridge Lake, BA 779; Loon Lake, BA 933; Grand Portage, Be 449.—Rather common.

SYRINGA VILLOSA Vahl. MacFarland Lake, BM 10861.—Cultivated at Jameson's Lodge.

GENTIANACEAE

GENTIANA RUBRICAULIS Schwein. *cf.* Fernald, RHODORA **37:** 325. Alpine Lake, Winslow Briggs (Sept. 8, 1951); Cross River, L 4710; Schroeder, OS 988.—River bank.

HALENIA DEFLEXA (Sm.) Griseb. South Lake, BA 791; Lucille Island, OO 1094; Grand Portage, Be 512, BR 6305, BM 10864; Mount Josephine, N 1608; Kimball Creek, R 2607; Grand Marais, L. S. Cheney (June 26, 1891), MacMillan (July 1900); Tofte, L 4702; Temperance River, SS 6035.—Moist hill sides, grassy terraces, old woods roads; infrequent.

MENYANTHES TRIFOLIATA L., var. MINOR Raf. Sea Gull River, N 1680; Sawbill Lake, Bg 53; Horseshoe Lake, BA 132; Partridge Lake, D 186; Long Lake, "L. W. K." (July 1936); Agnes Lake, L. W. Krefting 25; Grand Portage, SS 12034; Long Island, AA 500, OS 1112.—Bogs and pools.

APOCYNACEAE

APOCYNUM ANDROSAEMIFOLIUM L. (typical) *cf.* Woodson, RHODORA **34:** 30; *not* Woodson, Ann. Mo. Bot. Gard. 17: 86. Sawbill Lake, Bg 53; Poplar Lake, BAA 327; Clearwater Lake, BBl 434; Northern Light Lake, E. Loula 13; North Fowl Lake, BABs 659; Grand Portage, BM 10885.—Common in woods, on cliffs, and near habitations throughout the region.

CONVOLVULACEAE

CONVOLVULUS SPITHAMAEUS L. *C. spithamaeus* var. *stans* (Michx.) Fogelberg, Trans. Wisc. Acad. Sci., Arts & Letters 30: 24. 1937. Sawbill Lake, Bg 52; North Lake, D. Lange 12; Cross River, BA 928; Poplar Lake, L. A. Koelnau 116; Mount Maud, BA 198.—Dry, sometimes burnt-over, slopes.

This densely hairy, dwarfed phase grades into the less hairy, often more elongate var. *pubescens* (Gray) Fern. The Cook County plants are excessively pubescent, 1–1.7 dm. high, the leaves rather closely crowded together, tending to fold lengthwise when pressed in contrast to var. *pubescens* which is a less pubescent (to nearly glabrous), taller (laxer) plant whose leaves are thinner and show less tendency to be folded lengthwise. We have not noted any tendency for the typical material to have the leaves more cordate at the base (*cf.* Fogelberg, *loc. cit.*), than in var. *pubescens*. Our material from Cook County fits into the northwestern part of the range shown by Wherry (Proc. Penn. Acad. Sci. 7: 163, fig. 19) for *C.* "*stans*."

HYDROPHYLLACEAE

PHACELIA FRANKLINII (R. Br.) Gray *cf.* A. Brand, Pflanzenr. IV, 251, p. 109. Mountain Lake, BAA 296, BBsH 118; South Fowl Lake, BsH 323, BM 10820; Grand Marais, L. S. Cheney (June 25, 1891), Koelnau 110; Lutsen, NBr 3157; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 697.—Cliffs, wooded slopes; very local.

It is certainly not abundant in Minnesota, being known from but four localities in Cook Co. from Lake Vermilion, and from near Duluth, with a station in immediately adjacent Canada and on Isle Royale. Brand (*loc. cit.*), following R. Brown (Bot. App., p. 764 of Franklin's Journal, ed. 1), describes this species unequivocally as an annual. This appears to be doubtful since our specimens had already set an abundance of seed by July 6 and the beginning of growth in the area cannot be postulated as being earlier than the beginning of June. While there is no evidence of a well-developed rosette, there are dead leaves near the base of the stem in all our collections and these might easily be from the previous year's growth. We would consider it to be either a winter annual or a biennial.

There is a great deal of variation of height in this species as represented by our collections. Brand (*loc. cit.*) indicates a maximum height of 50 cm. for this species, although our specimens BAA 296 and BsH 323 exceed this by another 10 cm., while BBsH 118 attains a height of 70 cm. On the other hand our smallest flowering plant is but 7.5 cm. high. The sepal length given by Brand (*loc. cit.*) is 5 mm. in flower, and infrequently up to 10 mm. In our material this is about 3.5 mm. long in flower and about 7.5 mm. in fruit. Similarly Brand gives corolla length as 9 mm. while ours range from 7–8 mm. It is, however, possible that Brand first boiled his specimens, while our measurements are for the dry flowers. R. Brown's lucid description fits our material better than Brand's less complete and less accurate description but Brown gives plant height as only 6–10 inches; this is understandable since he based his description on material from farther north.

BORAGINACEAE

ECHIUM VULGARE L. Grand Marais, H. W. Slack (July 1892).—Introduced.

CYNOGLOSSUM BOREALE Fernald, RHODORA **7:** 249. *cf.* Johnston, Contr. Gray Herb. n. s. LXX: 34. Watab Lake, BA 115, BBsH 22; West Bearskin Lake, D 135.—Clearings and openings in forest; infrequent.

MERTENSIA PANICULATA (Ait.) G. Don *cf.* Fernald, RHODORA **37:** 328. Sawbill Lake, Bg 51; Poplar Lake, D 8; Brule River, E. Loula 17; Mountain Lake, BAA 239, BBsH 19, BBsH 82; South Fowl Lake, BABs 628; Royal River, BsH 291, BsH 362; Pigeon Point, BBs 716; Grand Portage, Be 479, S. Brown 9, BA 210; Hovland, Be 663; Grand Marais, N. L. Huff (July 10, 1925).—Moist woods, cliffs, ditches and portage trails; common.

All plants have some pubescence on the upper surface of the leaf, although some may have it nearly wanting. Thus none of this material is var. *subcordata* (Greene) McBr. to which Fernald refers (*loc. cit.* p. 328). There seems no reason to call our material anything other than typical as Williams (Ann. Mo. Bot. Gard. 24) treats the species.

LAPPULA ECHINATA Gilib. Grand Marais, M. E. Oldenburg (Nov. 1944).—Introduced.

HACKELIA AMERICANA (Gray) Fernald, RHODORA **40:** 341. *H. deflexa* (Willd.) Opiz, var. *americana* (Gray) Fernald & Johnston, RHODORA **26:** 124. Clearwater Lake, BA 125; Mountain Lake, BAA 276a, BBsH 43;

East Pike Lake, BsH 232; Royal River, BsH 340.—Cliffs and fine, gravelly talus; very abundant and generally diffused throughout the state.

LABIATAE

Scutellaria lateriflora L. Lake Saganaga, L. S. Cheney (July 25, 1891); Sawbill Lake, Bg 46; West Pike Lake, BsH 186; Susie Island, OO 1038; Lucille Island, OO 1093; Hovland, Be 659; Kimball Creek, R 2609; Temperance River, L 4712.—Stream, rivers, lakes, bottoms or banks.

S. epilobiifolia Hamilton. *cf.* Fernald, Rhodora **23:** 85; Leonard, Contr. U. S. Nat. Herb. 22: 723. *S. galericulata* of Am. auth. *not* L. Lake Saganaga, L. S. Cheney (July 23, 1891); Alton Lake, Bg 47; Birch Lake, BA 810; Gunflint Lake, BBl 383; Watab Lake, BAA 326; Clearwater Lake, N 1687; Royal River, BsH 287; Belle Rose Island, OO 1072.—Dams, lake margins, mucky swales.

Agastache Foeniculum (Pursh) Ktze. Tofte, L 4706.—Roadside.

Dracocephalum parviflorum Nutt. Watab Lake, BAA 223; Mountain Lake, BAA 267; East Pike Lake, BsH 215; South Fowl Lake, BsH 312, BM 10836; Mount Rose, SS 6067; Mount Josephine, BA 161.—Ridges, cliffs, hill-sides, talus slopes. Some individuals have pink flowers, some have blue.

Prunella vulgaris L., var. lanceolata (Barton) Fernald, Rhodora **15:** 183. Sawbill Lake, Bg 50; John Lake, BsH 286; Grand Portage, Be 534, R 6001, BAA 460; Tofte, R 7847.—Shady woods, old trails, camp sites, moist glades. Except for Be 534 and R 6001, these collections fall in f. *iodocalyx* Fernald.

Physostegia virginiana (L.) Benth., var. speciosa (Sweet) Gray. *P. speciosa* (Sweet) Sweet. Pigeon River, B (Sep. 3, 1927).—River mouth.

Galeopsis Tetrahit L. Susie Island, OO 1035, OO 1141; Grand Portage, Be 496, Be 571, S. Brown (1938); Grand Marais, T. S. Roberts (July 31, 1879), H. W. Slack (July 1892), R 2635, BR 6905, M. E. Oldenburg (Nov. 1944).—Shores and beaches, disturbed soil near habitations.

Stachys palustris L., *sens. lat.* Grand Portage, S. Brown (1935); Lutsen, BR 6525; Schroeder, OS 992.—Moist ground, ditches.

Blephilia hirsuta (Pursh) Benth. Grand Marais, H. W. Slack (July 1892).

Satureja vulgaris (L.) Fritsch. Lake Saganaga, L. S. Cheney (Jul. 25, 1891).—Portage trail.

Lycopus uniflorus Michx. Sawbill Creek, Bg 48; Caribou Lake, BsH 397; Canoe Lake, BsH 390; Susie Island, OO 1032b; Long Island, AA 503; Grand Marais, T. S. Roberts (Aug. 12, 1879); Temperance River, L 4714; Schroeder, O 986.—Moist soil near streams and pools and along portage trails.

L. americanus Muhl. Royal Lake, BsH 262; Susie Island, OO 1032a; Lutsen, R 7855.—Shady forest margins, ditches.

Mentha arvensis L., var. villosa (Benth.) S. R. Stewart. *M. canadensis* L. Sawbill Creek, Bg 49; Hungry Jack Lake, BAA 339; Royal Lake, BsH 257; Susie Island, OO 1125; Grand Portage, Be 655;

Grand Marais, T. S. Roberts (July 30, 1879); Schroeder, OO 995.—Moist places in swamps, ditches and near lake shores.

SOLANACEAE

CHAMAESARACHA GRANDIFLORA (Hook.) Fern. *Physalis grandiflora* Hook. Poplar Lake, BAA 325; MacFarland Lake, BBl 338.—Trails and roadsides; infrequent. This has every appearance of being an introduced weed, yet gives every evidence of being native.

SCROPHULARIACEAE

LINARIA VULGARIS Hill. Elbow Lake, E. Loula 8.—Roadside.

SCROPHULARIA LANCEOLATA Pursh. *S. leporella* Bickn. South Fowl Lake, BsH 301; Susie Island, R 6044; Mineral Center, BR 4569.—Exposed rocks.

CHELONE GLABRA L. *sens. lat.* Pigeon River, B (Sep. 1, 1927); Hovland, Be 661; Kimball Creek, R 2606; Temperance River, OS 1002.—Old river beds, moist meadows; infrequent.

MIMULUS RINGENS L. Sawbill Creek, Bg 45; Royal Lake, BsH 251; Pigeon River, BR 6269; Mark Creek, C. B. Reif A21.—Muddy areas or even submerged (in water 6″ deep); locally abundant.

GRATIOLA NEGLECTA Torr. Grand Portage, BR 6275.—In clay holes in trail; occasional.

VERONICA TENELLA All. *V. humifusa* Dickson. Mountain Lake, BAA 329; Grand Portage, BAA 452; Mount Josephine, BA 178.—Moist areas in and near portage trails, etc.; infrequent.

V. SCUTELLATA L. Mountain Lake, BAA 322; Pigeon River, BR 6273.—Moist places. Reported by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, p. 134) from the tributaries of the Pigeon River. They state (*op. cit.*, p. 139) that this is the only occurrence of the species in the streams of the Minnesota North Shore of Lake Superior.

V. SCUTELLATA, var. VILLOSA Schumacher. *cf.* Fernald, RHODORA **37:** 331. Clearwater Lake, BsH 163.—Low, wet ground near portage trail.

V. AMERICANA (Raf.) Schwein. Grand Portage, Be 536, Be 695, S. Brown (1935), BAA 453, BM 10867; Mount Josephine, BA 177; Mineral Center, BR 4581.—Ditches, old portage trails, in small streams; occasional.

V. PEREGRINA L., var. XALAPENSIS (HBK.) St. John & Warren. Lucille Island, OO 1107.—At edges of polluted pools, gull roosts, crest of island.

CASTILLEJA SEPTENTRIONALIS Lindl. Grand Portage, L. S. Cheney (Jul. 6, 1891).— Very rare in Cook County; we have not observed it there, although the junior author found it locally abundant further east in the Thunder Bay Dist., Ont.

MELAMPYRUM LINEARE Desr., var. LINEARE (Desr.) Beauv. *cf.* Fernald, RHODORA **44:** 446. Clearwater Lake, BBsH 166; Little Caribou Lake, BsH 395; Mountain Lake, BAA 294; Morrison Bay, BBs 727; Little Brick Island, OO 1080; Susie Island, BBl 353, AA 558; Grand Portage, L. S. Cheney (Jul. 6, 1891), Be 585, Be 678, R 7868.—Dry rocks, old portage trails, tops of cliffs; occasional.

M. LINEARE, var. AMERICANUM (Michx.) Beauv. Mountain Lake, BBsH 140; Morrison Bay, Rydberg & Rosendahl (Aug. 16, 1929); Mount Josephine, BA 170.—Exposed rocks; infrequent.

EUPHRASIA HUDSONIANA Fern. & Wieg., RHODORA **17:** 194. Pigeon Point, BAA 445; Clark's Bay, BR 6280; Morrison Bay, BBl 360; Brick Island, OO 1077; Susie Island, OO 1048; Long Island, AA 509; Grand Marais, T. S. Roberts (Aug. 1879), Cheney (June 27, 1891), H. L. Lyon 925, N. L. Huff (Jul. 9, 1925), R 5963 a & b, BR 6906; Cascade, Bg (Aug. 30, 1946); Lutsen, L 4783; Tofte, L 4777; Temperance River, L 4792, L 6757.—Rocks and ledges along the shore of Lake Superior; local.

Fernald in Gray's Manual, ed. 8, recognizes the presence of two species of *Euphrasia* in Minnesota, *E. arctica* Lange ("n. Minn.") and *E. hudsoniana* Fern. & Wieg ("n. e. Minn."). The recognition of the presence of the latter in our area is presumably based on some of our specimens which the junior author showed Prof. Fernald some ten years ago. We had carefully reworked the Lake Superior material and had decided it all belonged in *E. hudsoniana* rather than in *E. arctica* where it had earlier been put, for instance, in Gray's Man., ed. 7, by Pennell (Acad. Nat. Sci. Phila., Monogr. **1:** 487–9), and by Fernald and Wiegand (RHODORA **17:** 193). Therefore it is a little puzzling to find *E. arctica* still credited in ed. 8 of Gray's Manual to "n. Minn.," although it is gratifying to find *E. hudsoniana* accepted for "n. e. Minn."

A thorough examination of our material cited above, as well as of material from Isle Royale, material from elsewhere on the North Shore, and of specimens kindly loaned to us by the Gray Herbarium, has convinced us that our Great Lakes material in general is referable to *E. hudsoniana*. This conclusion has been fortified by comparisons with the numerous specimens of *E. hudsoniana* which the junior author collected on the University of Minnesota Expedition to Hudson Bay in 1939.

The Lake Superior material of *E. hudsoniana* differs from *E. arctica* in its small flowers and seeds, its tendency toward more sharply pointed and more or less spinulose calyx lobes and teeth of the leaves; its habit of branching is fastigiate rather than spreading; its corolla differs in the notching of the lobes of the lower lip, in the shape of the galea, and in its size; the bracts are rhombic and the leaves are oblong. (Incidentally the illustration of "*E. arctica*" in Pennell's monograph is an excellent representation of Minnesota material of *E. hudsoniana* and may indeed have been based on it.)

Another species to which the Lake Superior *Euphrasia* might be ascribed is *E. subarctica* Raup, RHODORA **36:** 87, at least as far as the published description for this species goes; but omitted from the original description is the fact (evident from the type material loaned to us by the Gray Herbarium) that long, gland-tipped hairs are present; the Lake Superior plants are eglandular.[17] The Lake Superior material is further differ-

[17] The extent to which the presence of glandular hairs is to be considered a sufficiently important character upon which to base subdivisions of the genus is a moot question in the opinion of the writers. We have seen material of *E. arctica* from Greenland which is distinctly glandular, while material from the Torngat Mountains

entiated from *E. subarctica* by its aristate-tipped leaf teeth, somewhat larger flower size, and more sharply pointed calyx lobes.

While there are a few minor differences between the Lake Superior plants and the Hudson Bay material of *E. hudsoniana* they are so slight as to hardly justify considering the Lake Superior material as worthy of even formal distinction. We prefer to keep it in this rather weak species of the *E. arctica* complex, which includes a number of other named phases. We are inclined to think of this group of species as a series of plants with an essentially common genetical composition in which a few genes are varying more or less independently. Along with this, slight geographical segregation has served to preserve minor variants.

LENTIBULARIACEAE

UTRICULARIA VULGARIS L. *cf.* G. B. Rossbach, RHODORA **41:** 113. Kelso River, Bg 44; Caribou Lake, "L. W. K." 14; Brule River, C. B. Reif A24; Grand Portage, BA 981, SS (June 28, 1948); Bally Creek, C. B. Reif A36; Temperance River, C. B. Reif A16.—In streams 1–3 ft. deep with rock, muck or sand bottom and shallow pools in Thuja swamps. Reported by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, p. 139) under the name *U. macrorhiza* Le Conte from the Cascade River and characterized by them (*op. cit.*, p. 139) as rare and occurring mostly in beaver ponds.

U. MINOR L. Otter Lake, BA 798b.—Pools about an inch deep in a floating bog.

U. INTERMEDIA Hayne. Sea Gull Lake, L 3681; Otter Lake, BA 798a; Grand Portage, BA 980, SS 12025, S A5301.—Border of beaver dam pond; shallow pools in *Thuja* swamp and floating bog; shallows of L. Superior in Grand Portage Bay. Reported by Smith and Moyle (*op. cit.*, p. 134) as in the Brule River, and characterized by them as about as abundant and in the same situations as *U. vulgaris*.

PINGUICULA VULGARIS L. Pigeon Point, BAA 444; Morrison Bay, BBs 721; Porcupine Island, BBs 747; Susie Island, R 6037; Lucille Island, N 1664, BAA 360; Long Island, BAA 469, AA 514; Grand Marais, T. S. Roberts (Aug. 14, 1879), L. S. Cheney (June 20, 1891); H. W. Slack (July 1892), BR 4644, N. L. Huff (July 9, 1925), BA 42, BM 10769; Tofte, L 4782; Temperance River, SS 6031.—Pools and moist pockets in rocks along shore of Lake Superior; infrequent. It is represented from Minnesota in the Herbarium of the University of Minnesota only from Two Harbors and Gooseberry Falls (both in Lake County). It is also known from Isle Royale and the Thunder Bay Dist., Ont.

PLANTAGINACEAE

PLANTAGO MAJOR L. Pine Lake, BsH 412; Grand Portage, Be 645, R 7897.—Portage trails, roadsides, beaches; introduced.

P. MAJOR, var. PILGERI Domin. *P. major*, var. *pachyphylla* Pilger; *P.*

---

of northern Labrador may be only slightly glandular, and that from the Gulf of St. Lawrence is eglandular. This is one of the many points which must be settled by some monographer when this interesting genus is satisfactorily studied.

asiatica acc. to Rydberg; *P. major*, var. *asiatica* (L.) Dcne. of many Amer. authors *fide* Pilger, Pflznrch IV. 269. p. 53. 1937. Grand Portage, Be 502; "shore of Lake Superior between Grand Marais and Grand Portage," L. S. Cheney (Jul. 1, 1891), F. F. Wood (Jul. 1, 1891).—Lake shores and open places, probably native. Identity of some of above collections uncertain because of immaturity of capsules.

P. Purshii R. & S. Grand Marais, BA 762.—By roadside in gravel of raised beach; rare. The first record in the Herbarium of the University of Minnesota from Cook County although common to the south.

P. virginica L. Grand Marais, BA 765.—On small ledges of disintegrating black eruptive rock; uncommon. First record from Minnesota in University of Minnesota Herbarium and curiously far north of its general range.

RUBIACEAE

Galium triflorum Michx. Poplar Lake, L. W. Orr 3, L. W. Orr 25; Birch Lake, BA 811; Clearwater Lake, BBl 469, BBsH 11; Lima Mountain, BA 889; John Lake, BM 10814; Royal River, BsH 248, BsH 346; Grand Portage, Be 521, Be 543; Mount Josephine, BA 174; Mineral Center, Be 693; Kimball Creek, R 2614; Kimball Lake, E. Loula 12.—Shady woods, portage trails, moist cliffs; general.

G. trifidum L. Sawbill Lake, Bg 43; Partridge Lake, BA 786.—Moist woods (black ash grove).

G. tinctorium L. *cf.* Fernald, Rhodora **37:** 444. *G. trifidum* L., subsp. *tinctorium* (L.) Hara, Rhodora **41:** 388. Elbow Lake, BBsH 133; Susie Island, OO 1036, OO 1130.—Moist woods.

G. labradoricum Wiegand. Cross River, BR 6372.

G. asprellum Michx. Sawbill Lake, Bg 42; West Pike Lake, BsH 187; Grand Portage, Be 681; Grand Marais, BA 755.—Moist arbor-vitae woods, roadside ditches, and lake shore.

Mitchella repens L. Grand Portage, BR 6274.—Old trail; infrequent.

Houstonia longifolia Gaertn. Temperance River, SS 6025.—Crevices in diabase; only collection from the county. It occurs on acid rock outcrops and sandy soils throughout much of the state, and is apparently more common in Lake and St. Louis Counties than in Cook County.

CAPRIFOLIACEAE

Diervilla Lonicera Mill. Sawbill Lake, Bg 41; West Bearskin Lake, D 132; Clearwater Lake, BBl 402; Grand Portage, Be 493; Mount Rose, S. Brown 31; Kimball Creek, R 2629; Poplar River, T. S. Roberts (Aug. 6, 1879).—Exceedingly common throughout.

Lonicera villosa (Michx.) R. & S., var. Solonis (Eaton) Fernald, Rhodora **27:** 6. Porcupine Island, BR 6246, AA 572; Schroeder, NBr 3211.—Woods and shores; common.

L. canadensis Bartr. Sea Gull Lake, L 3695; Cross River, BA 898; Poplar Lake, D 35; Clearwater Lake, BBl 400, BA 68; Lima Mountain,

BA 867; John Lake, BM 10815; Kimball Creek, R 2626; Carribeau River, BR 4490.—Woods; common.

L. OBLONGIFOLIA (Goldie) Hook. Sea Gull Lake, L 3695a.—Common in the northern part of the state.

L. CANADENSIS × L. OBLONGIFOLIA. Sea Gull Lake, L 3687.

Although *L. canadensis* was in fruit (L 3695) and *L. oblongifolia* was in late flower and early fruit (L 3695a) at the time that the above collection was made, it is not inconceivable that a late flower of *L. canadensis* might at some time have permitted crossing of the two. L 3687 is in immature fruit, the berries being but poorly filled out. Its slender pedicels are 2 to 2.5 cm. long and the berries definitely separate, in these respects approaching *L. canadensis*. The leaves are larger than those of either putative parent (hybrid vigor perhaps) with the slender petioles about 0.5 cm. long, the base and apex both acute, thus resembling *L. oblongifolia* in shape. The texture of the leaf most nearly approaches that in *L. canadensis*.

L. DIOICA L., var. GLAUCESCENS (Rydb.) Butters. *cf.* Clements, Rosendahl and Butters, Minnesota Trees and Shrubs, p. 289, 1912. Sea Gull Lake, L 3682; Lima Mountain, BA 868; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 684.—Common throughout the state, but not often observed by the writers in Cook Co. It seems to have the same tendency as do poison ivy, Virginia Creeper, and *Celastrus scandens*, in seeking out the warmer slopes.

L. HIRSUTA Eat. Gunflint Lake, L 3717; Clearwater Lake, BsH 158, BA 948; Little Caribou Lake, BsH 416; Mountain Lake, BAA 265; MacFarland Lake, BBl 329, BBl 335; Royal River, BsH 353; Devil's Track River, C. W. Hall (Aug. 21, 1879).—Cliffs and woods; rather common in northern Minnesota generally.

SYMPHORICARPOS ALBUS (L.) Blake. Sea Gull Lake, L 3688; Clearwater Lake, BBl 423; West Pike Lake, BsH 195; East Pike Lake, BsH 223; John Lake, BM 10812; Thunder Bay Dist., Ont. (North Fowl Lake) BABs 699, (Pigeon Bay) AA 606.—Frequent on cliffs and slopes. Our collections range from the glaucous extreme often referred to as var. *pauciflorus* (Robbins) Blake to the typical material with leaves green below.

LINNAEA BOREALIS L., var. AMERICANA (Forbes) Rehder. Sea Gull Lake, L 3616; Sawbill Lake, Bg 40; Poplar Lake, L. W. Orr 6, D 91; Moss Lake, D 141; Clearwater Lake, BBl 468; Susie Island, OO 1022; Grand Portage, Be 474, Be 489, R 5992, S. Brown 18; Brule River, BR 4519a; Carribeau River, BR 4518.—Very common in woods of the region.

VIBURNUM RAFINESQUIANUM Schultes. *V. affine* Bush, var. *hypomalacum* Blake, RHODORA **20:** 14. Clearwater Lake, BBl 422; East Pike Lake, BsH 222; Royal River, BsH 352; Fort Charlotte, BR 6264; Mount Josephine, BA 1048; Thunder Bay Dist., Ont. (North Fowl Lake) BABs 679.—Woods; not overly common.

V. EDULE (Michx.) Raf. *cf.* Fernald, RHODORA **43:** 481. *V. pauciflorum* La Pyl. Clearwater Lake, BBl 403, BBsH 10, BA 946, D 123;

Little Caribou Lake, BsH 394; Mountain Lake, BAA 293; South Fowl Lake, BsH 313, BM 10824; Pigeon Point, BBs 737; Little Brick Island, OO 1078; Grand Portage, Be 554 and 632, R 5995, Butters & Wherry (June 30, 1935), R 7871; Brule River, BR 4532; Kimball Creek, R 2634; Grand Marais, L. S. Cheney (June 20, 1891); Carribeau River, BR 4488; Lutsen, L 4785.—Abundant in woods of Cook Co., but has not been collected elsewhere in Minnesota.

V. TRILOBUM Marsh. *V. Opulus* L., var. *americanum* Ait. Royal River, BABs 712; Fort Charlotte, BR 6265.—Moist woods near streams; common in the state, but infrequent in Cook Co.

SAMBUCUS PUBENS Michx. *cf.* Fernald, RHODORA **35:** 310. Poplar Lake, D 47; Grand Portage, BA 160; Grand Portage Island, R 6034a; Grand Marais, BR 4506.—Common.

CUCURBITACEAE

ECHINOCYSTIS LOBATA (Michx.) T. & G. Lutsen, L 4787.—Shore of Lake Superior. Has ripe fruit and thus is apparently capable of reproducing itself but is nevertheless uncommon.

CAMPANULACEAE

CAMPANULA RAPUNCULOIDES L. "between Tofte and Grand Marais," J. B. Moyle 3441.—Introduced.

C. ROTUNDIFOLIA L. *cf.* Malte, RHODORA **36:** 188. Rove Lake, BBl 431; Clearwater Lake, BBl 462; Little Caribou Lake, BsH 396; John Lake, BM 10789; South Fowl Lake, BsH 325; Pigeon Point, BR 6254; Grand Portage, Be 643; Grand Portage Island, R 6025; Grand Marais, T. S. Roberts (July 31, 1879), R 5968; Tofte, L 4776.—Frequent on the inland cliffs, in river gorges, and on shore rocks of Lake Superior. We have listed above the plants which are of the "usual" height and which are more or less bristly puberulent. A dwarf phase of otherwise typical material occurs on the more exposed shore rocks of Lake Superior, represented by the following:—Pigeon Point, B (Sept. 3, 1927), BBs 740; Long Island, AA 527; Grand Marais, N. L. Huff (July 9, 1925); Thunder Bay Dist., Ont. (the Boundary Islands in Pigeon Bay), AA 594.

C. ROTUNDIFOLIA L., var. INTERCEDENS (Witasek) Farwell. Little Caribou Lake, BsH 411; Mountain Lake, BBsH 34; East Pike Lake, BsH 224; South Fowl Lake, BsH 317; Pigeon Point, BAA 433; Grand Portage, BAA 470; Temperance River, SS 6038; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 694.—Common on cliffs.

This is the extreme which is glabrous or merely pubescent in lines, at the other extreme are the plants which are bristly puberulent. In this character as well as in shape of ovary, length of calyx lobes, etc. there is much variation in our material, the characters varying independently as though in different genetical linkage groups. The recognition of var. *intercedens* is therefore merely one of convenience. That pubescence is probably connected with genetical causes is indicated by the observation in the field that some colonies are composed of pubescent individuals only while other colonies are much less so. Some of the plants listed are the

familiar albescent phase which has the pale yellow green foliage and colorless corolla. This set of characters also varies independently of the ones previously mentioned.

C. ULIGINOSA Rydb. Sawbill Creek, Bg 39; Cross River, BA 899; Royal River, BsH 256, BsH 328; Grand Marais, T. S. Roberts (Aug. 12, 1879); Bally's Creek, C. B. Reif A34.—Swamps and marshes; infrequent.

LOBELIA KALMII L. *cf.* McVaugh, RHODORA **38:** 355. Grand Marais, T. S. Roberts (July 27, 1879), H. Lyon 927; Tofte, L 4774, R 7822.—Shore rocks of Lake Superior.

L. DORTMANNA L. *cf.* McVaugh, RHODORA **38:** 357. Sawbill Lake, Bg 38; Birch Lake, BA 813; Leo Lake, BAA 329a; Grand Marais, L. W. Krefting (July 1937).—Sandy bottoms of shallow lakes.

COMPOSITAE

EUPATORIUM MACULATUM L. Sawbill Lake, Bg 30; Hungry Jack Lake, BR 6335; Lima Mountain, BA 860; South Fowl Lake, BsH 326; Grand Portage, R 7903; Hovland, R 7874.—Lake shores, moist woods.

E. MACULATUM L., var. FOLIOSUM (Fern.) Wieg. RHODORA **22:** 66. Grand Portage, Be 524.—Trail.

E. PERFOLIATUM L. Sawbill Lake, Bg 27.—Portage.

SOLIDAGO HISPIDA Muhl. *ex* Willd., var. TYPICA Ros. & Cron. Hungry Jack Lake, BR 6362*, BsH 419*; Clearwater Lake, BBl 467*.—Cliffs and roadsides.

S. HISPIDA Muhl., var. ARNOGLOSSA Fern. Little Caribou Lake, BsH 404*; South Fowl Lake, BsH 281*, BsH 315*; Royal Lake, BsH 247*, BsH 359*; Porcupine Island, BR 6257*, OO 1012; Susie Island, B (Sep. 2, 1927)*; Long Island, AA 513*; Sailboat Island, AA 534*; Grand Portage Island, R 6031*; Cascade River, T. S. Roberts (Aug. 2, 1879)*.—Inland cliffs and shore rocks of Lake Superior.

S. ULIGINOSA Nutt. Cross River, BA 911†; Aspen Lake, BA 949; Lima Mountain, BA 852†; Clark's Bay, BR 6257*; Porcupine Island, OO 1013; Susie Island, AA 557*; Long Island, AA 519*; Grand Portage, Be 692*, B (Sep. 15, 1929)*; Grand Marais, R 5966*; Hovland, OO 1003.—Shore rocks and nearby wet meadows.

S. JUNCEA Ait. Grand Portage, Be 552, Be (Aug. 23, 1929), R 7865.—Old trails and woods margins.

S. NEMORALIS Ait. Grand Portage, R 7861, BA 1018†; Mount Josephine, BR 6311*, BR 6322*, BR 6323*, BA 1039†; Hovland, OO 1008; Thunder Bay Dist., Ont. (Pigeon Bay), AA 604*.—Dry rocks, roadside.

S. CANADENSIS L. Poplar Lake, BA 834†; Lima Mt., BA 851†, BA 859†; Greenwood Lake, BA 988†; Grand Portage, R 7870; Hovland, OO 1007; Poplar River, T. S. Roberts (July 1878); Tofte, R 7829.—Clearings and roadsides.

* *Solidago* spp. *fide* Arthur Cronquist. (*cf.* C. O. Rosendahl & Arthur Cronquist. The goldenrods of Minnesota. Amer. Midl. Nat. **33:** 244–253.) Absence of an asterisk or dagger indicates identification by the collector.

† *Solidago* spp. *fide* C. O. Rosendahl.

S. LEPIDA DC., var. FALLAX Fernald, RHODORA **17:** 9. Grand Portage, Be 686*.—Lake shore.

S. GIGANTEA Ait., var. LEIOPHYLLA Fernald, RHODORA **41:** 457. Schroeder, N 1730*.

S. GRAMINIFOLIA (L.) Salisb. South Fowl Lake, BsH 293; Little Brick Island, OS 1081; Susie Island, R 6063, OO 1042; Sailboat Island, AA 537; Cascade River, T. S. Roberts (Aug. 3, 1879).—Shore rocks, rock crevices.

ASTER MACROPHYLLUS L. Sea Gull Lake, BA 922; East Pike Lake, BsH 210*.—Dry soil on cliff top and in gravel pit.

A. MACROPHYLLUS L., var. VELUTINUS Burgess. Hovland, Be 668*; Tofte, R 7838.—Roadside.

A. CILIOLATUS Lindl. *A. Lindleyanus* T. & G. Gunflint Lake, R 5453*; Poplar Lake, R 5437*; Pine Lake, BsH 375*; Pigeon River, R 6031*; Grand Portage, Be 631*, BA 991; Tofte, R 7839, R 7840, R 7844, R 7846, R 7851.—Woods, trails and roadsides.

A. PUNICEUS L. Hungry Jack Lake, BsH 417*; Lima Mountain, BA 855; Royal Lake, BsH 347*; Pigeon River, AA 586*; Grand Portage, BA 964, BA 991, R 7895; Hovland, Be 666*.—Woods and roadsides.

A. LATERIFLORUS (L.) Britt. Grand Portage, Be 664*; Hovland, Be (Aug. 23, 1929)*; Kimball Creek, R 2615; Tofte, L 4713*.—Woods and roadsides.

A. SIMPLEX Willd. Pigeon River, AA 587*; Grand Marais, BA 1020; Tofte, R 7854; Schroeder, BA 1068.—Woods and roadsides.

A. PUNICEUS L. × A. SIMPLEX Willd. Pigeon River, AA 585*.—Woods. The two putative parents were collected the same day at the same locality (AA 586 and AA 587).

A. JUNCIFORMIS Rydb. Sea Gull Lake, BA 923; Grand Marais, H. L. Lyon 930*.—Gravel pits, etc.

A. LONGULUS Sheldon. *A. junciformis* × *A. puniceus*, Shinners, RHODORA **44:** 338. Lutsen, R 7856; Tofte, R 7828, R 7832, R 7857.—Moist banks and clearings.

A. PTARMICOIDES (Nees) T. & G. Pigeon Point, BAA 426*; Grand Portage, N 1638*; Grand Marais, T. S. Roberts (Jul. 31 & Aug. 1879)*, H. W. Slack (Jul. 1892)*, H. L. Lyon 921*, R 5964*, BR (Aug. 14, 1934)*, BR 6910*; Cascade, Bg (Aug. 30, 1946); Tofte, L 4780*, R 7823; Temperance River, SS 6030.—Shore rocks.

A. PUBENTIOR Cronq. *A. umbellatus* Mill., var. *pubens* Gray. Lima Mountain, BA 850; Brick Island, OO 1075; Long Island, AA 524*; OO 1110; Kimball Creek, R 2613*; Grand Marais, BR (Aug. 14, 1934)*; Tofte, R 7824; Temperance River, L 6763; Schroeder, BA 1073.—Shore rocks, woods, roadsides.

ERIGERON PHILADELPHICUS L. Grand Portage, S. Brown (1935)*, BA 204*; Devil's Track River, BR 4666*.—Trails and stream banks.

* *Aster* spp. *fide* Arthur Cronquist. (*cf.* C. O. Rosendahl & Arthur Cronquist. The Asters of Minnesota: A floristic study. Amer. Midl. Nat. **42:** 502–512.) Absence of an asterisk signifies identification by the collector.

E. STRIGOSUS Muhl. Pine Lake, BsH 388*; Grand Portage, BA 1017, BA 1030.—Trail, dry open woods, woods roads.

E. STRIGOSUS Muhl., var. SEPTENTRIONALIS (Fern. & Wieg.) Fern. Mountain Lake, BAA 266*; Grand Marais, BA 766; Thunder Bay Dist., Ont. (South Fowl Lake), L. S. Cheney (Jul. 9, 1891)*.—Portage trails and dry rocky cliff top.

E. ANGULOSUS Gaud., var. KAMTSCHATICUS (DC.) Hara *E. elongatus* Ledeb. Susie Island, R 6058; Pigeon Point, BA 994.—Talus and rocks by lake shore; only collections known from state.

E. COULTERI Port. Grand Portage, B (no no., no date)*.—Abandoned garden; introduced, not naturalized.

E. CANADENSIS L. *Conyza canadensis* (L.) Cronquist. Poplar Lake, BA 841; Clearwater Lake, BA 951; Rocky Lake, BsH 377*; MacFarland Lake, BsH 371*; South Fowl Lake, BsH 321*; Royal Lake, BsH 245†; Grand Marais, T. S. Roberts (Aug. 12, 1879)*.—Open woods on crests of cliffs, burnt over slopes, dry talus.

ANTENNARIA CANADENSIS Greene. Clearwater Lake, BA 69; Mountain Lake, BBsH 63; Grand Portage, BA 145.—Dry soils of open woods, pine forests on shoulders of cliffs and hillsides.

A. NEODIOICA Greene. Rove Lake, BBl 436; Watab Lake, BAA 233; Mountain Lake, BBsH 39; Thunder Bay Dist., Ont. (North Fowl Lake), BABs 680.—Tops of cliffs in open woods, and on cliffs.

A. NEODIOICA, var. ATTENUATA Fernald. Poplar Lake, D 40, D 50; Watab Lake, BA 107; John Lake, BM 10811.—Dry hilltops and slopes, roadsides.

A. PETALOIDEA Fernald. Carlton Peak, MacMillan (July 1900).—Infrequent in Minnesota.

A. MUNDA Fernald, RHODORA **38:** 229. Poplar Lake, D 62; Little Caribou Lake, BsH 409; Clearwater Lake, D 112; Mountain Lake, BBsH 38; Royal River, BsH 337; Mount Josephine, BA 176.—Open places on slopes, cliffs and cliff-tops. BsH 337 is placed here provisionally, the veins of the leaves not being as hairy as in the rest of our *A. munda*.

ANAPHALIS MARGARITACEA (L.) C. B. Clarke, var. INTERCEDENS Hara. *cf.* Hara, RHODORA **41:** 391. Sawbill Lake, Bg 2, Bg 28; Clearwater Lake, BBl 451; Northern Light Lake, E. Loula 11; Susie Island, OO 1126; Grand Portage, Be 682.—Roadsides and other openings; common.

GNAPHALIUM MACOUNII Greene. Greenwood Lake, BA 986.—Old gravel pit.

AMBROSIA TRIFIDA L. Grand Portage, BR 6213.—Disturbed soil near habitations.

A. PSILOSTACHYA DC., var. CORONOPIFOLIA (T. & G.) Farw. Grand Marais, Dr. Stenstrom (Aug. 1933).—Roadside.

* *Erigeron* spp. *fide* Arthur Cronquist. (*cf.* Arthur Cronquist. Revision of the North American species of Erigeron, north of Mexico. Brittonia 6: 121–300.) Absence of an asterisk signifies identification by the collector.

† *Conyza canadensis fide* Arthur Cronquist. (*cf.* Bull. Torrey Bot. Cl. **70:** 629–632.)

Rudbeckia hirta L. Sawbill Lake, Bg 14; Royal Lake, BsH 270; Tofte, L 4705; Grand Portage, BA 1016; Mineral Center, BA 1089.—Clearings and roadsides.

Helianthus borealis E. E. Watson, Papers Mich. Acad. Sci., Arts and Letters **9:** 411. (1929). John Lake, BsH 285; Mineral Center, BA 1090.—Rocky fields.

H. laetiflorus Pers., var. rigidus (Cass.) Fern. Grand Portage, BA 1026.—Meadow.

H. maximiliani Schrad. Mineral Center, BA 1087, BA 1088; Grand Portage, BA 1027.—Roadsides. BA 1087 is a depauperate, monocephalic form growing with normal plants (BA 1088).

Bidens cernua L. Hungry Jack Lake, BR 6358; Pigeon River, BR 6271.—Locally abundant on flats at river mouth and along wet pond shore.

B. vulgata Greene, f. puberula (Wieg.) Fernald. Greenwood Lake, BA 987.—Gravel pit.

Megalodonta Beckii (Torr.) Greene. *Bidens Beckii* Torr. Birch Lake, BA 806. Reported by Smith and Moyle (Minn. Dept. Cons., Tech. Bull. 1, p. 134) from the Cross and Brule Rivers, and characterized by them (*op. cit.*, p. 139) as "Rare; in quiet waters."

Achillea Ptarmica L. Susie Island, OO 1144 (det. C. O. R.).—"Common near cabin." Introduced.

A. Millefolium L. Rove Lake, BBl 430.—Aspen woods.

This collection is placed here provisionally, but is not in good flower.

A. lanulosa Nutt. Sawbill Lake, Bg 21; Brule River, E. Loula 10; Watab Lake, BA 104, BAA 320; Royal Lake, BsH 265, BsH 348; Pigeon Point, BAA 446; Clark's Bay, BAA 395a; Porcupine Island, AA 570; Susie Island, OO 1137, OO 1154; Lucille Island, BAA 362; Long Island, AA 518, AA 548; Sailboat Island, AA 541; Grand Portage, Be 566, S. Brown (1935); Grand Marais, ?T. S. Roberts (Jul. 27 & 31, 1879), R 5973, M. E. Oldenburg (Nov. 1944); Poplar River, T. S. Roberts (1878); Thunder Bay Dist., Ont. (Pigeon Bay), AA 593.—Dry ledges, rocky and gravelly shores. The familiar pink-rayed variant is represented in several of these collections.

This puzzling genus has been surveyed on the basis of the Minnesota material for differences between *A. lanulosa* and *A. Millefolium*. Within the group of plants cited above as *A. lanulosa* the rays vary from 1.5 to 3 mm. in length, the involucral bracts from pale straw color to nearly chestnut, the vestiture of the plant as a whole from slightly to heavily lanate. Constant however are the ascending leaves and leaf segments, which give the living plants a plumose appearance and cause many herbarium specimens to have such poorly displayed leaves. Also the leaves (as compared with those of *A. Millefolium*) are short, narrow, and broadest toward the base. The midrib of the leaves tends to remain but very narrowly winged as contrasted with the broader wing found along the midrib in *A. Millefolium*. The plant as a whole tends to be somewhat more strict and the inflorescence branches relatively short, although this

is not invariably the case. Often the inflorescences are convex, but may occasionally be flat-topped.

The distinction between *A. lanulosa* and *A. occidentalis* as indicated by Rydberg (N. Am. Flora, vol. 34, 224) is not clear to us.

MATRICARIA MARITIMA L., var. AGRESTIS (Knaf) Wilmott. *M. inodora* L. Grand Marais, BR (Aug. 14, 1934), BR 6904, M. E. Oldenburg (Nov. 1944).—Shingle beach and roadsides throughout the village as well as on the Point.

M. MATRICARIOIDES (Less.) Porter. *M. suaveolens* (Pursh) Buch. Sawbill Lake, Bg 16; MacFarland Lake, BM 10863; Susie Island, OO 1140; Grand Portage, S. Brown (1935).—Weed.

CHRYSANTHEMUM LEUCANTHEMUM L., var. PINNATIFIDUM Lecoq & Lamotte. *cf.* Fernald, RHODORA **5:** 177. Sawbill Lake, Bg 19; West Bearskin Lake, D 146; South Fowl Lake, BsH 294; Grand Portage, Be 569.—Rubble beaches and disturbed land near habitations; introduced weed. It occurs in vast quantities on the east (Canadian) side of the Pigeon River, just below the outlet of South Fowl Lake, at the site of an old lumber camp.

ARTEMISIA CAUDATA Michx. South Fowl Lake, BsH 284, BsH 309; Royal River, BsH 333.—Cliffs, dry exposed areas; rather infrequent, being more general in the southern two-thirds of the state in wooded and prairie habitats. All this material has very narrow leaves and no sign of perennation. BsH 333 is a little more pubescent than usual and therefore is equivalent to var. *calvens* Lunell.

A. CANADENSIS Michx. *sens. lat.* Mount Josephine, BR 6317, BA 166a, BA 1033; Thunder Bay Dist., Ont. (Pigeon Bay), AA 597.—Dry cliffs and on hilltops.

Our material is definitely perennial and rather small-headed (although not as small-headed as *A. caudata*) and corresponds to the description given for *A. camporum* Rydb. by Rydberg (N. A. Flora, vol. 34, pt. 3: 254) as well as to specimens so named by him. The treatments of this group in North America have been so diverse that we hesitate to confuse the nomenclature further by proposing a new varietal combination without a thorough study of forms throughout the continent. Our Minnesota material appears to conform to a fairly definite type which has the characters attributed to *A. camporum* Rydb. The matter is further involved because there is some question of whether *A. camporum* and *A. pacifica* Nutt. are conspecific. Also there is some doubt as to the proper application of *A. canadensis;* it is variously interpreted by A. Gray (Synopt. Fl. N. A., ed. 2, p. 368), by Fernald (Mem. Gray Herb. II, p. 284), by Hall and Clements (Carnegie Inst. Wash. Publ. 326, p. 124), and by Rydberg (*op. cit.* p. 255).

PETASITES PALMATUS (Ait.) Gray. Rove Lake, BA 106a; Mountain Lake, BBsH 60; Royal River, BsH 345; Pigeon River, BR 4618.—Moist woods and ravines.

P. SAGITTATUS (Pursh) Gray. Watab Lake, BBsH 116 (leaves only).—Lowland woods; rather rare in the state.

Arnica chionopappa Fernald, Rhodora **7:** 148; *idem* **26:** 105; *idem* **35:** 366–367. Clearwater Lake, BBl 404, BA 93, BBsH 8.—Locally abundant on a north-facing cliff of calcareous slate on south side of the lake, the only station known in Cook County.

M. L. Fernald has discussed the present find in Rhodora **35:** 367 and there gives a map showing this station in relation to the then-known distribution of this species. Other stations for this conspicuous species (the bright yellow of the above colony is clearly visible across the width of Clearwater Lake when the plants are in flower) have been sought during a series of summers in the intensive collecting which has been prosecuted in Cook County. Yet it has not been found elsewhere in the county. This poses a problem in dissemination:—with a pappus so well-adapted to wide distribution, why should it be so extremely local in occurrence?

An *Arnica*, apparently this same species, has been collected by Miss Lakela in Lake County. It seems to have a series of minor differences which distinguish it from the Clearwater Lake material.

Senecio pauperculus Michx. Tofte, L 4837.—Shore rocks.

S. pauperculus Michx., var. Balsamitae (Muhl.) Fern. Grand Marais, BR 4665—Along a stream.

S. pauperculus, var. Balsamitae, f. inchoatus Fernald, Rhodora **30:** 226. John Lake, BM 10808; Pigeon River, BR 6267; Grand Marais, MacMillan & Hibbard (July 1900).—Cliffs, etc.

S. aureus L. Susie Island, OO 1030; Lucille Island, OO 1091.—Edge of woods.

S. eremophilus Richardson. *cf.* Greenman, Ann. Mo. Bot. Gard. **2:** 597–598. Thunder Bay Dist., Ont. (Pigeon Bay), AA 605.—Dry, slate cliffs. Certainly to be expected in Minnesota, the above station being on the north side of a narrow bay through which the Internatioanl Boundary runs. It has been reported heretofore only as far east as the Dakotas and Manitoba.

This material is a good match for Greenman's description of this species. There is a great deal of variation in the leaves which in some plants are rather deeply pinnatifid while in others they are merely strongly dentate. The latter type of plant doubtless is Rydberg's *S. Kingii* which Greenman reduced to a variety. In our opinion it is hardly worthy of taxonomic rank, since both types of leaf may be found on the same plant.

Arctium minus (Hill) Bernh. Cascade River, BA 759.—Roadside.

Cirsium vulgare (Savi) Tenore. *C. lanceolatum* Scop. Sawbill Lake, Bg 32; Lima Mountain, BA 648.—Roadsides.

C. undulatum (Nutt.) Spreng. Grand Marais, T. S. Roberts (Aug. 14, 1879).—"A few plants growing in a pasture field (Howenstein's) and said to have appeared recently" according to the label on the above collection. Not noted since.

C. muticum Michx. Sawbill Lake, Bg 33; Lima Mountain, BA 849.—Roadsides.

C. arvense (L.) Scop. Sawbill Lake, Bg 37; Mineral Center, Be 688.—Woods and roadsides; common along highway west of Grand Marais.

TARAXACUM PALUSTRE (Lyons) Lam. & DC., var. VULGARE (Lam.) Fernald, RHODORA **35:** 380–383. Lucille Island, BAA 370; Grand Marais, BA 34.

The Grand Marais collection we at first thought represented a distinct form because of the abundant kinky, flattened, multicellular hairs which form a lanate pubescence along the midrib, while similar but shorter hairs occurred elsewhere on the leaves. Careful field observations made upon a second visit to the locality in 1937 convinced us that it is merely a teratological response which is not constant; some plants have both very pubescent and practically glabrous leaves, while there are other individuals at this same station which are uniformly glabrous-leaved.—A reminder to unwary botanists of the pitfalls afforded by dandelions!

SONCHUS ARVENSIS L. Grand Marais, BA 758.—Roadside.

LACTUCA LUDOVICIANA (Nutt.) Riddell. Cross River, BA 929; Birch Lake, BA 826.—Cut-banks and trails.

L. BIENNIS (Moench) Fernald. Lima Mountain, BA 858; Grand Portage, BA 1019.—Trails.

PRENANTHES ALBA L. Pigeon Point, BAA 413, BAA 421; Porcupine Island, BR 6247; Long Island, AA 521; Grand Portage, Be 507; Tofte, L 4778.—Cliffs, trails, shore rocks.

HIERACIUM AURANTIACUM L. Poplar Lake, Bg (photographic record, July 1943).—Roadside. The red phase. Associated with *Ranunculus acris* and *Chrysanthemum Leucanthemum*.

H. CANADENSE Michx. Sawbill Lake, Bg 15; Birch Lake, BA 825; John Lake, BsH 246; Grand Portage, Be 652; Tofte, R 7843.—Trails, roadsides, and near human habitations.

H. UMBELLATUM L. *H. scabriusculum* Schwein. West Pike Lake, BsH 193; Pine Lake, BsH 376a, BsH 414; Clark's Bay, R 6082.—Trails and cliff-tops.

H. SCABRUM Michx. *cf.* Fernald, RHODORA **16:** 181. Alton Lake, Bg 17; Pine Lake, BsH 376, BsH 413.—Portage trails in dry open birch woods, etc.—DEPARTMENT OF BOTANY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS 14, MINNESOTA.

THE IDENTITY OF HEDYOTIS ROSEA RAF.—In the spring of 1950 and 1952 the author found growing on prairies near Stillwater, in rather localized patches, a species of *Hedyotis* (*Houstonia*) characterized by having large pink corollas (ca. 1 mm. in diameter) which are hairy in the throat, flat fruits, and spatulate basal leaves as Mueller and Mueller described *Houstonia pygmaea*.

A study of our material shows three additional characteristics that may be used for differentiating this species from our much

[1] Mueller, C. H. and Mary T. Mueller, *A New Houstonia in South-central Texas.* Bull. Torr. Bot. Cl. 63: 33–34, 1936.